MARCH '56

MODERN TEXTILES MAGAZINE

Specializing in Rayon and Synthetic Fibers since 1925

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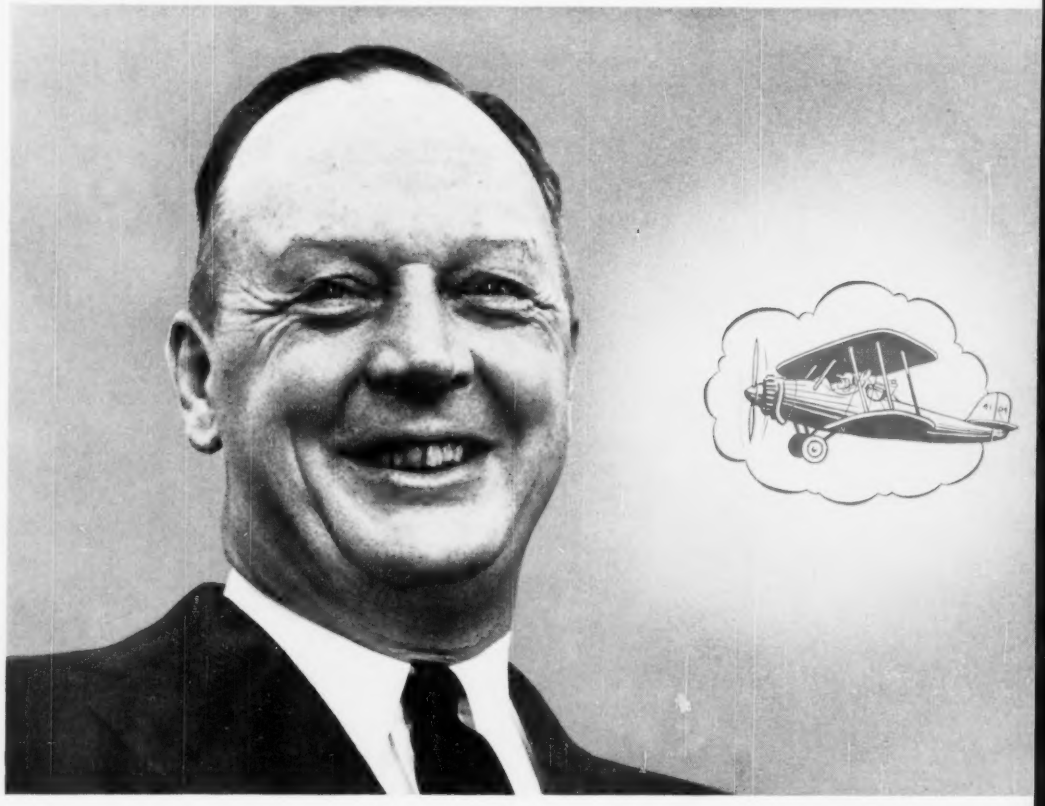

Skinner & Sons' STEWART KILBORNE pours fresh energy into an old firm.

Story page 31

THIS MONTH'S SPECIAL FEATURES:

Dyeing Arnel tricot
Enka's texturizing process
Tests for drawing and roving
Latest figures on man-made fibers
Improve your stretch and snag tests

AND 16 MORE SPECIAL REPORTS AND HELPFUL ARTICLES

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In Draper All-Steel Top Drive Anti-Friction Spindles Permit

BETTER SPINNING AT LOWER COST

New concave collar and washer design makes "plumbing" easier and faster. Spindle slippage is reduced to a minimum.

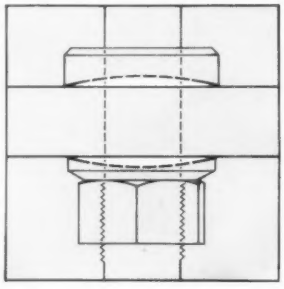
New welded construction eliminates possibility of doffer guards becoming loose.

Incorporated whorl design permits easy removal of waste yarns when doffing and simplifies manual braking. Bolster life, spindle speeds and quality of yarn are all increased.

Power requirements, lubrication cycle, blade vibration and ends down are all reduced.

In addition . . . it's an accepted fact that Draper *conforming fit* maintains a more *even* bobbin line *than any other Top Drive.*

Let a Draper spindle specialist analyze your spindle needs today.



Concave collar and washer design makes "plumbing" easier and faster.

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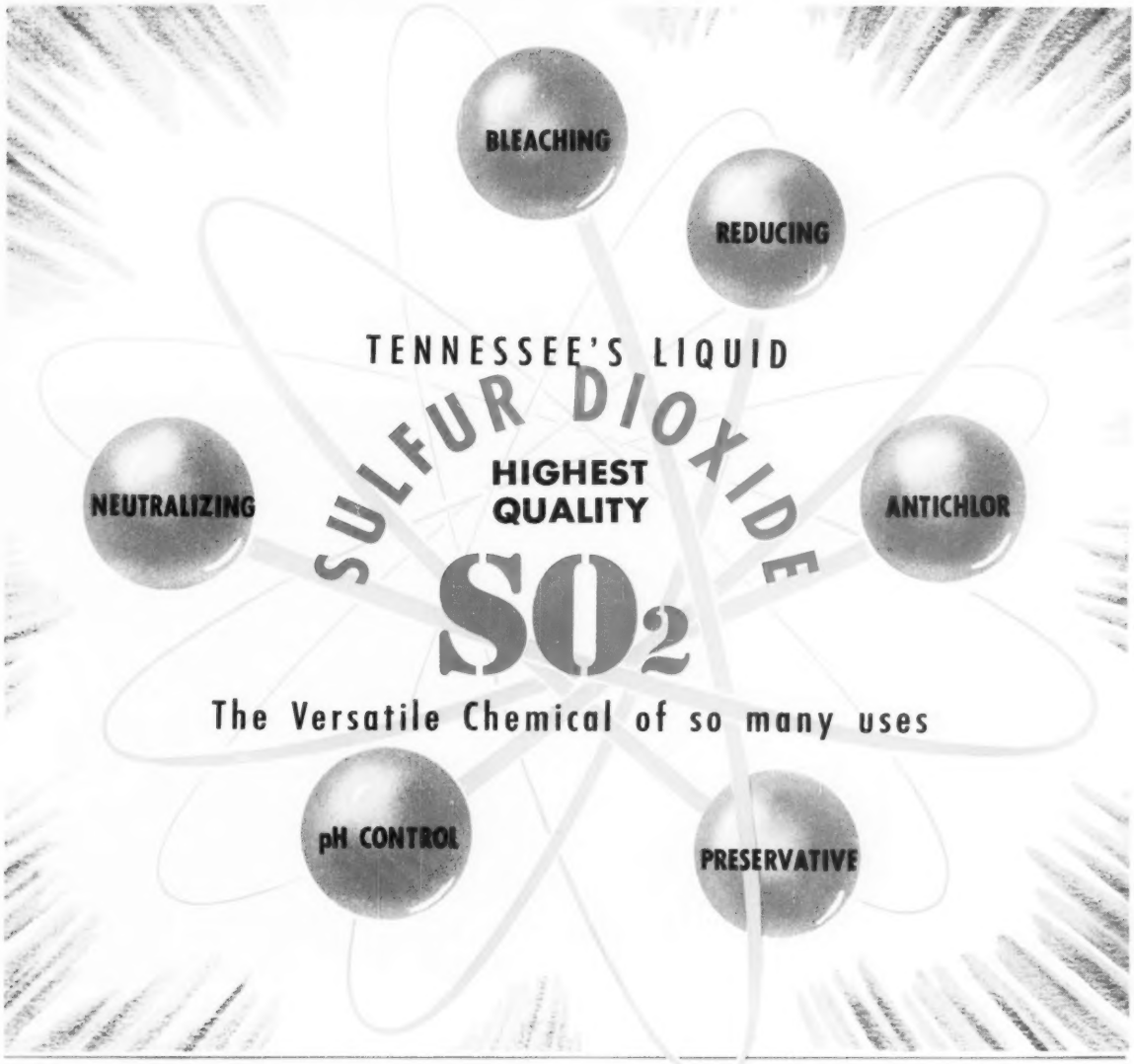
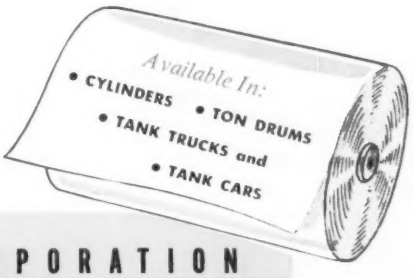


Particularly effective as a bleaching, reducing and neutralizing agent, antichlor, pH control and preservative . . . . Tennessee's Liquid Sulfur Dioxide is effecting a more efficient and economical operation in many processes of the textile industry.

Tennessee's highest purity Liquid Sulfur Dioxide can perhaps improve your processing as it is doing for many textile operations. We would like to consult with you on these possibilities.



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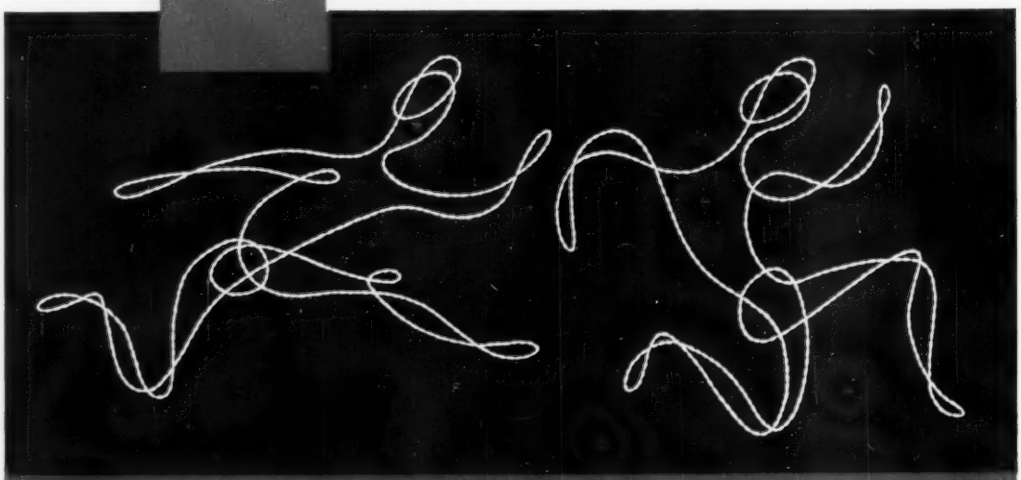
32 million yard dash!

Q. How do you break speed records without breaking yarn?



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Coming in on the beam are 32 million yards* of IRC Continuous Process rayon that could easily fly right through your loom without stopping for a break.

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It's 100% impossible for anyone's hands to damage this rayon while it's spun—they never touch it!

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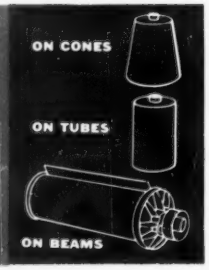

MODERN
TEXTILES MAGAZINE *

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Letters to the Editor

Updating Koch on Dynel

The table of world-wide man-made fiber types and their properties published on pages 64-68 of your September issue is certainly a masterful job. With regard to Dynel, however, there are certain errors in the table which are understandable in view of the fact that it may take considerable time for information to go to Europe and infiltrate back here. Some of Dr. Koch's data on Dynel is like that which we published 4 and 5 years ago. Improvements in resin and fiber quality, however, have altered the physical properties somewhat since then. As examples, referring to the columns on page 65:

	Koch's Figures	Present Dynel
Softening Area	125-135°C.	150-160°C.
Contraction Area	140-145°C.	120-125°C.
Melting Point	190-200°C.	none (it chars)
Spec. Wt., g/cm³	1.28	1.30
Moisture Acceptance at 65% RH	<0.5	<0.4
Tens. Str., g/d	3.0-3.8	2.5-3.3
Wet Str., (% of dry)	100%	100%
Elong. at Break	35-45%	30-42%

A further item for your reference—Dynel tow described on page 63 is said to be a light amber and as 90,000 total denier. Present production is considerably improved in color—a sample of fiber is here— and it probably should be described as wool-white or ecru. The tow is also now being produced with a total denier of 180,000.

Again, in your October issue, Dr. Koch refers on pages 51 and 52 to "Vinyon" N filament and the various types (NOZZ, NOHU, NORV, etc.) This filament has not been produced for two years, and we will not make it again. As a matter of fact, all the equipment has been removed or cannibalized for Dynel staple.

R. K. KENNEDY
Textile Fibers Dept.
Carbide and Carbon Chemicals Co.

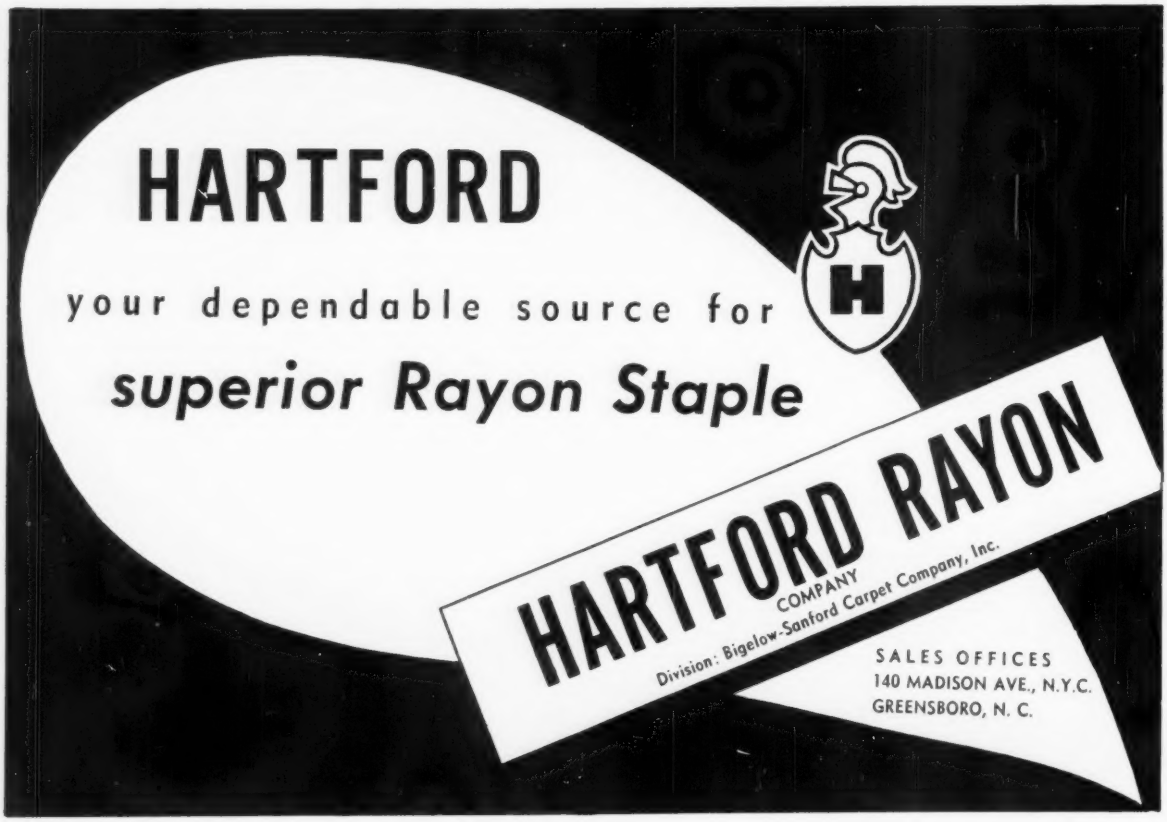
Standards in Textiles

Your November *Publisher's Viewpoint* on the use of standards in textiles was inspiring, a subject close to my heart. . . .

The adoption of carefully chosen standards, which result from extensive research, should provide textile manufacturers with a satisfactory yardstick to measure their products. A campaign of promotion and sales appeal through an informative advertising program, if aimed at the chief purchasing agent, the homemaker, would assure demand for fabrics that meet standard requirements.

Organizations such as Women's Clubs, Home Economics Associations, extension groups and others would support such a presentation. They are constantly seeking improvements in every area of their lives. Certainly clothing, home furnishings, and decorative fabrics make an important contribution to everyone's life, and any means of assuring satisfactory service from the fabrics that go into these widely divergent areas would win their acceptance and backing. . .

MARTHA E. JUNGERMAN
Philadelphia Textile Institute



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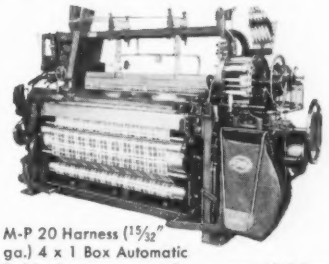

M-P 20 Harness (15/32" ga.) 4 x 1 Box Automatic Dobby Loom . . . one of many new M-P Looms . . . *all built on the same basic frame*

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Dow to Offer Textile Fiber

A new fiber will be offered the textile industry sometime during 1956 by Dow Chemical Co., according to a recent statement by Leland I. Doan, president. Mr. Doan said that the new fiber will be less expensive than others now on the market and will afford outstanding performance in crease resistance, water proofing and durability.

Although Mr. Doan did not indicate the chemical nature of his company's new fiber, there have been reports in the textile industry that the new Dow fiber will contain acrylonitrile. End uses for the new fiber mentioned by Mr. Doan were apparel, draperies and upholstery.

Du Pont Expanding Nylon And Orlon Plant Capacity

The Du Pont Co. plans to increase production facilities at its Martinville, Va., nylon plant. The erection of new buildings will cost about $300,000, according to the company. Construction will add 22,000 square feet in storage and service facilities. Du Pont also is considering the construction of a heavy denier nylon plant in Richmond, Va., where the company now manufactures cellophane and rayon.

Estimates will be made to determine if a plant producing 35,000,000 pounds annually of heavy denier nylon for use in tire cord and other industrial products would be feasible. Heavy deniers are primarily used for making tires for automobiles, trucks, airplanes, busses and off-the-road tractors and bulldozers.

Another construction plan for a plant making Orlon acrylic fiber is being considered. According to the company, the plant would produce 40,000,000 pounds of Orlon annually, and might be located in Waynesboro, Va.

At present all Orlon is produced commercially at the company's plant at Camden, S. C., but the main research effort on the fiber is centered in Waynesboro. According to the company if the new project is authorized, it would increase Du Pont's production of Orlon staple and tow to approximately 100,000,000 pounds a year.

Big Vinyl Fabric Sales

More than 120,000,000 yards of vinyl fabrics were sold by the industry in 1955 with a dollar value exceeding $100,000,000 according to E. G. Hamway, Textileather Division, General Tire & Rubber Co. A big share of this output was used in automotive, furniture, luggage and bookbinding end products.

Backing fabrics can be classified in three categories: woven, knitted and non-woven. The fabrics or fibers may be treated or untreated, bleached or dyed before the coating operation.

Woven cottons are being used chiefly for vinyl backings, according to Mr. Hamway. However, there is a trend toward knitted and non-woven backings for upholstery uses. Vinyl can be used on almost all fabrics, while pyroxylin, another type of vinyl resin, is used only on woven materials. Either of the materials can be applied to the base by knife or roller coating.

The solid content of pyroxylin coatings varies, depending on the method employed, while vinyl coatings may be applied in solution form or as a dispersion. The bulk of vinyl coating, applied by either knife or roller, are dispersion coatings in the form or organosol, plastisol, or latex.

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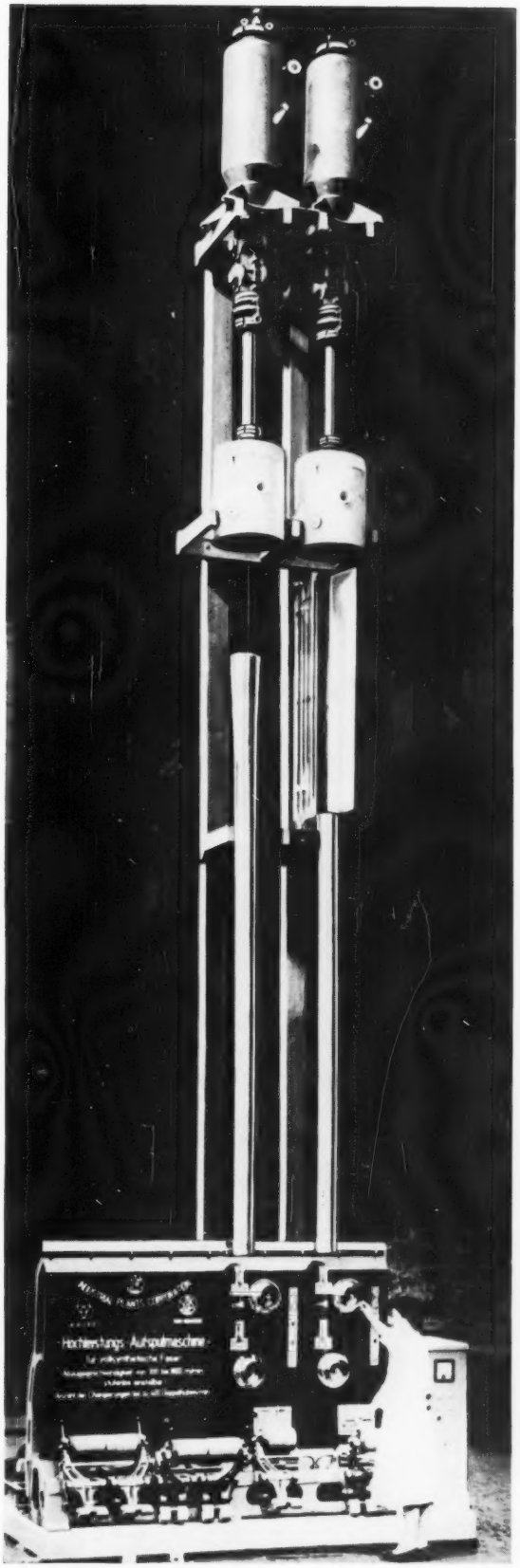

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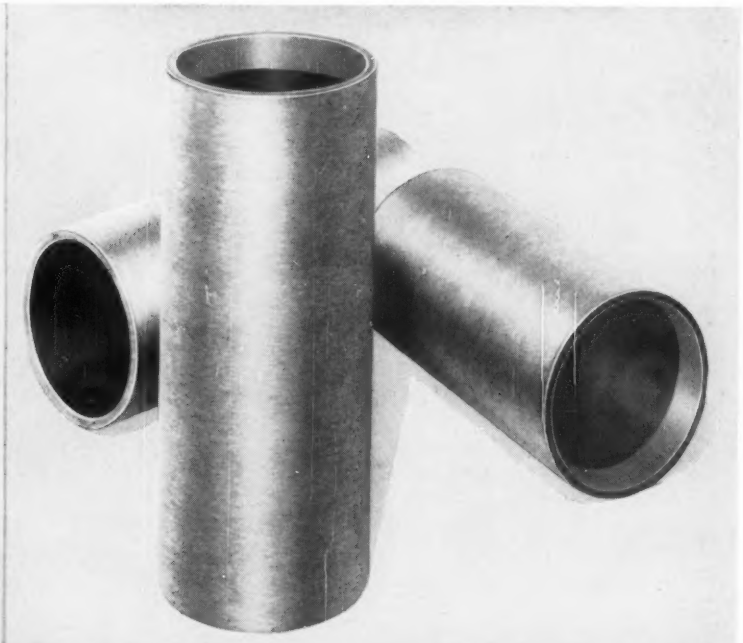

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SONOCO Duroweld Lap Rolls are chamfered inside at the ends to comply with Saco-Lowell Drawing No. 3DL331. Available in standard 9" and 10½" lengths with 4½" O. D.

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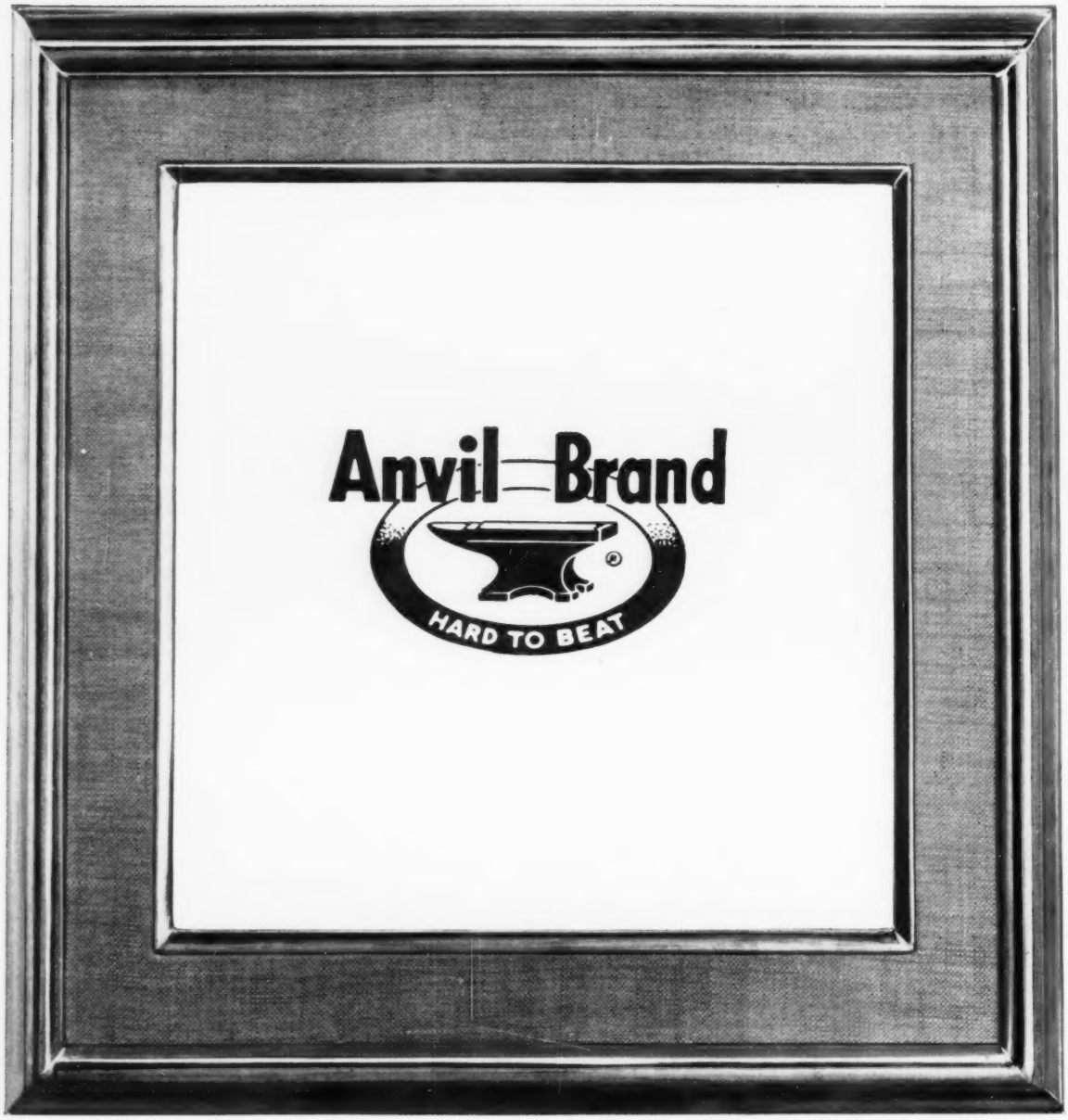

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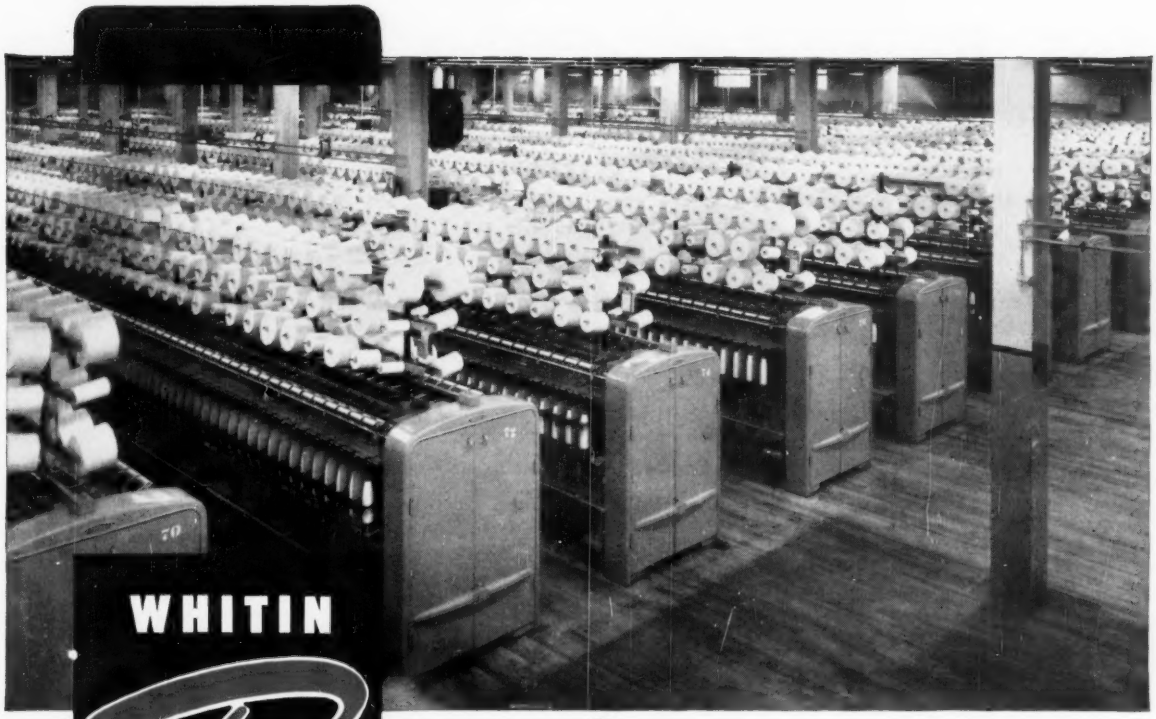

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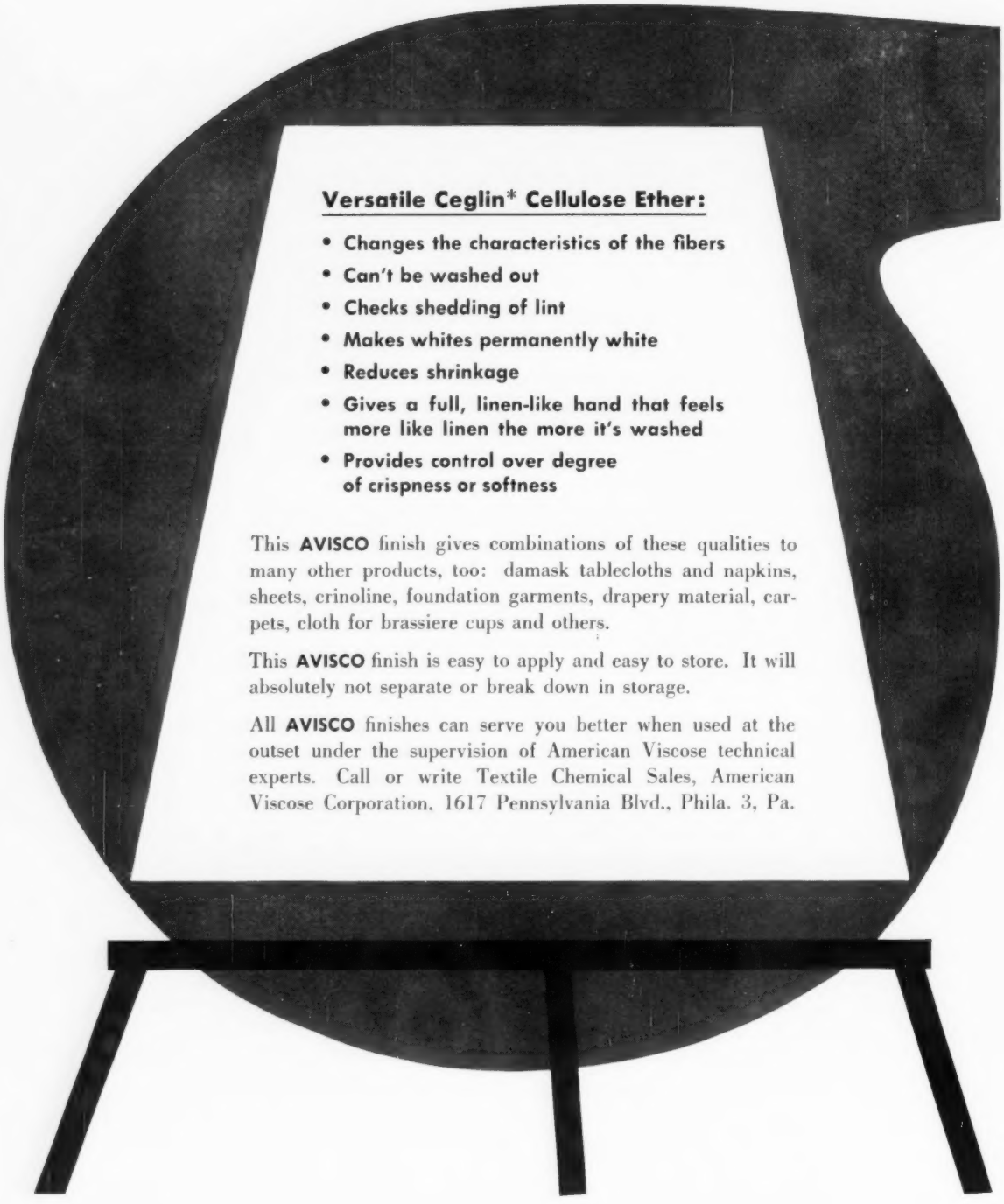

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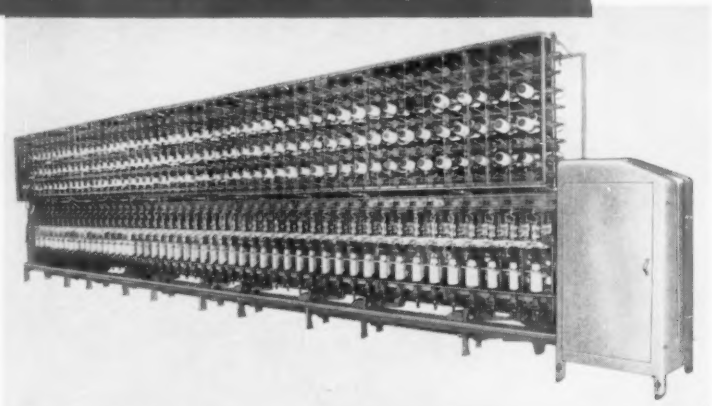

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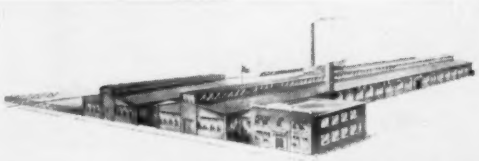
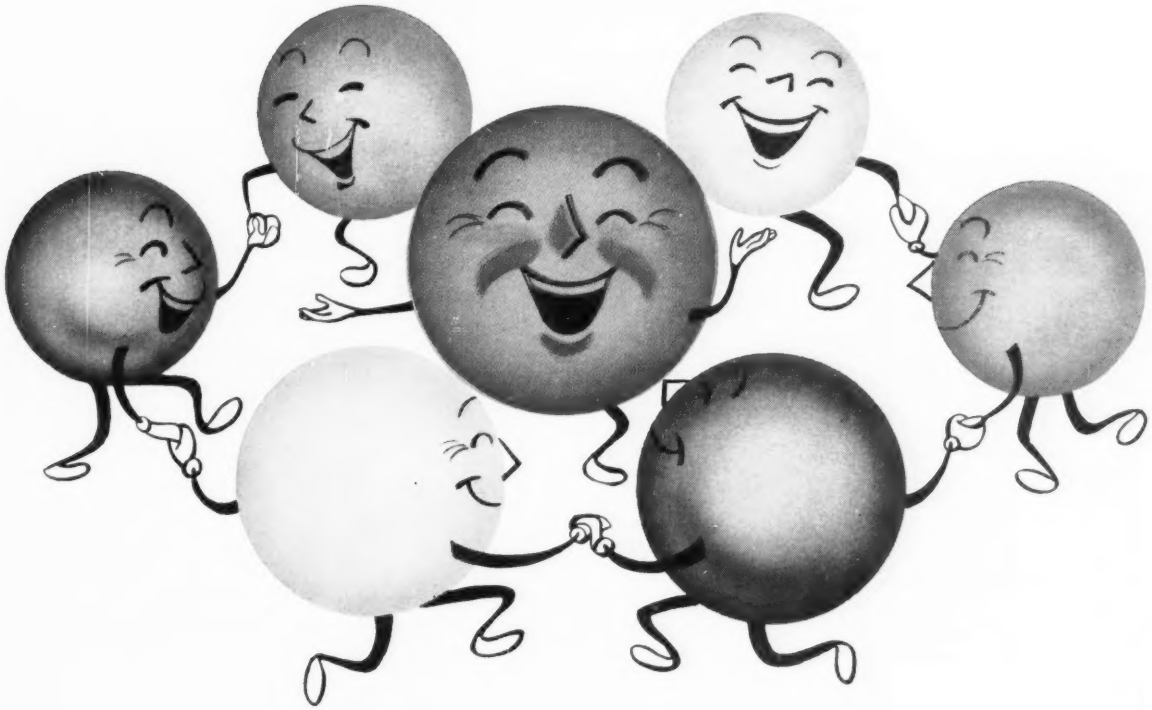


U. S. TEXTILE MACHINE CO. • SCRANTON 8, PA.



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When it comes to getting along in the chemical world, Chlorine is one of the leading "mixers," with the ability to step in among so many tight little molecular groupings. In some cases, Chlorine just nudges in among the atoms and makes room for itself. In others, it gets a little rougher, chasing away some atoms completely and preparing the way for the introduction of still other chemical pals.

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Columbia-Southern, one of the nation's leading producers of Chlorine, has widespread facilities for serving industry from its plants in Barberton, Ohio; New Martinsville, West Virginia; Corpus Christi, Texas; Lake Charles, La.

CHLORINE IS ESSENTIAL TO A MULTIPLICITY OF PRODUCTS

Many of the refinements of our civilization are dependent upon Chlorine, from its original uses in the bleaching of textiles and paper, and for its germicidal protection of water supplies and other public health applications, down to such modern products as plastics, synthetic rubber, solvents, vitamins, the new wonder drugs, high-test gasolines, non-toxic refrigerants, dyes, herbicides, insecticides and innumerable chemicals and chemical intermediates.

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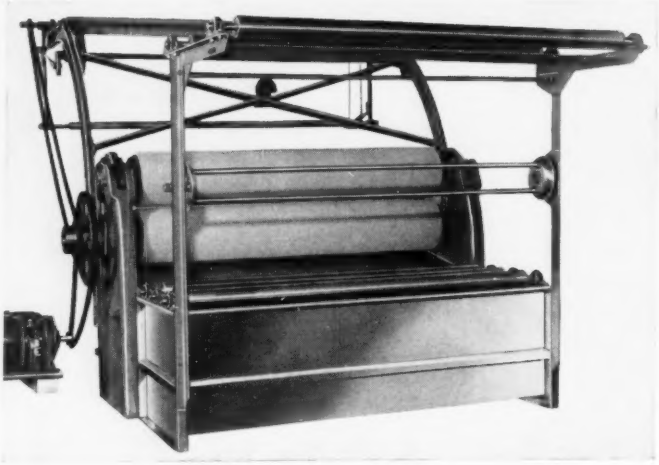
For Color Padding, Sizing, Resin Treatment Fire Proofing, Moth Proofing, etc.



TYPE AU-14 PADDER

- ✓ 14" Diameter Rolls, face length 84"
- ✓ Stainless Steel Tank
- ✓ Immersion and Carrier Rolls with entrance frame assembly at entering end of Tank
- ✓ Roll type folder at delivery end of machine driven by chain and sprocket from main roll
- ✓ Main Drive is variable speed unit
- ✓ Available with rubber-covered rolls or stainless steel bottom and rubber top rolls

SQUEEZE ROLL EXTRACTORS

The Fleet Line Squeeze Roll Extractor meets the demand for modern high speed production, without sacrificing efficiency. Massive construction assures long life. Rolls are operated with compressed air, which automatically equalizes roll pressure from end to end, with Fingertip Pneumatic Control from central panel. In all models, stainless steel drip pan is positioned beneath the main rolls. Suitable for all types of fabrics and for range operation, these Squeeze Rolls are made with air pressure or spring pressure and with rolls from 6" to 18" diameter and face lengths as required.

Send for catalog showing the complete Fleet Line of Padders and Squeeze Roll Extractors — types to specification for every need

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FOOT OF SUFFOLK STREET, LOWELL, MASS.

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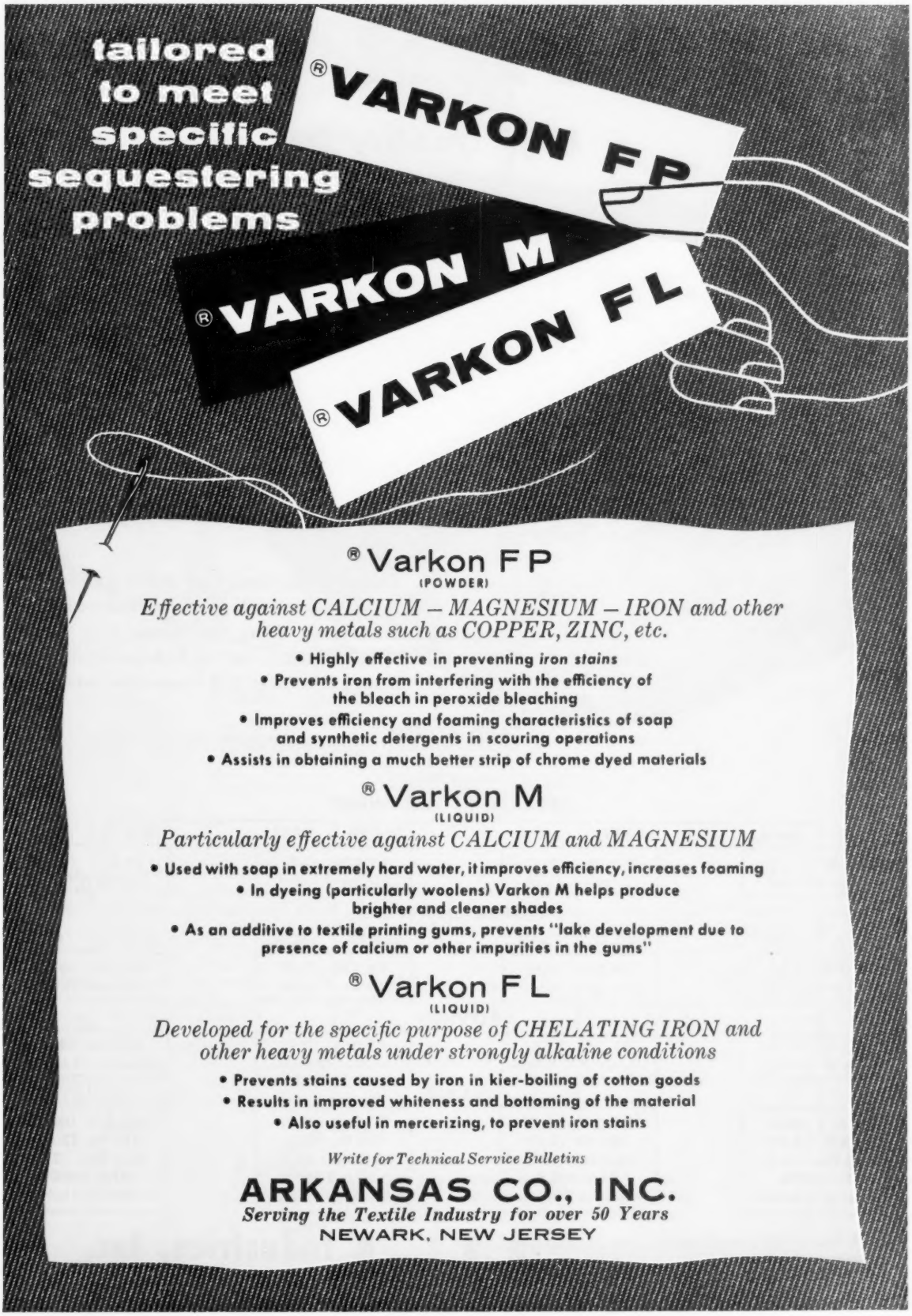

® Varkon F P
(POWDER)

Effective against CALCIUM – MAGNESIUM – IRON and other heavy metals such as COPPER, ZINC, etc.

- Highly effective in preventing *iron stains*
- Prevents iron from interfering with the efficiency of the bleach in peroxide bleaching
- Improves efficiency and foaming characteristics of soap and synthetic detergents in scouring operations
- Assists in obtaining a much better strip of chrome dyed materials

® Varkon M
(LIQUID)

Particularly effective against CALCIUM and MAGNESIUM

- Used with soap in extremely hard water, it improves efficiency, increases foaming
- In dyeing (particularly woolens) Varkon M helps produce brighter and cleaner shades
- As an additive to textile printing gums, prevents "lake development due to presence of calcium or other impurities in the gums"

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(LIQUID)

Developed for the specific purpose of CHELATING IRON and other heavy metals under strongly alkaline conditions

- Prevents stains caused by iron in kier-boiling of cotton goods
- Results in improved whiteness and bottoming of the material
- Also useful in mercerizing, to prevent iron stains

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For speed . . . and for high quality drawing sliver . . . write for full information today.

CARD SLIVER

24.5% (2.6)
(average of 24 cans)

	BREAKER DRAWING		
120 FT. /MIN.	240 Ft. /MIN.	360 FT. /MIN.	450 FT. /MIN.
17.1% (1.7) (average of 8 cans)	17.2% (1.1) (average of 8 cans)	18.4% (2.5) (average of 8 cans)	21.8% (1.5) (average of 8 cans)
FINISHER DRAWING			
120 FT. /MIN.	240 FT. /MIN.	360 FT. /MIN.	450 FT. /MIN.
15.0% (1.9) (average of 12 cans)	16.8% (1.6) (average of 12 cans)	16.2% (1.0) (average of 12 cans)	17.7% (0.6) (average of 12 cans)
ROVING			
39.1% (1.3) (average of 12 bobbins)	41.2% (1.8) (average of 12 bobbins)	42.0% (2.9) (average of 12 bobbins)	45.6% (2.2) (average of 12 bobbins)
YARN			
30.4/1 (0.8) 103% (2.7) 69.0 lbs. (3.5) BF = 2098 (average of 12 bobbins)	30.5/1 (0.7) 104% (2.0) 66.0 lbs. (2.8) BF = 2013 (average of 12 bobbins)	30.3/1 (0.6) 107% (3.1) 68.0 lbs. (2.6) BF = 2060 (average of 12 bobbins)	30.3/1 (0.8) 107% (2.6) 66.0 lbs. (3.7) BF = 2000 (average of 12 bobbins)

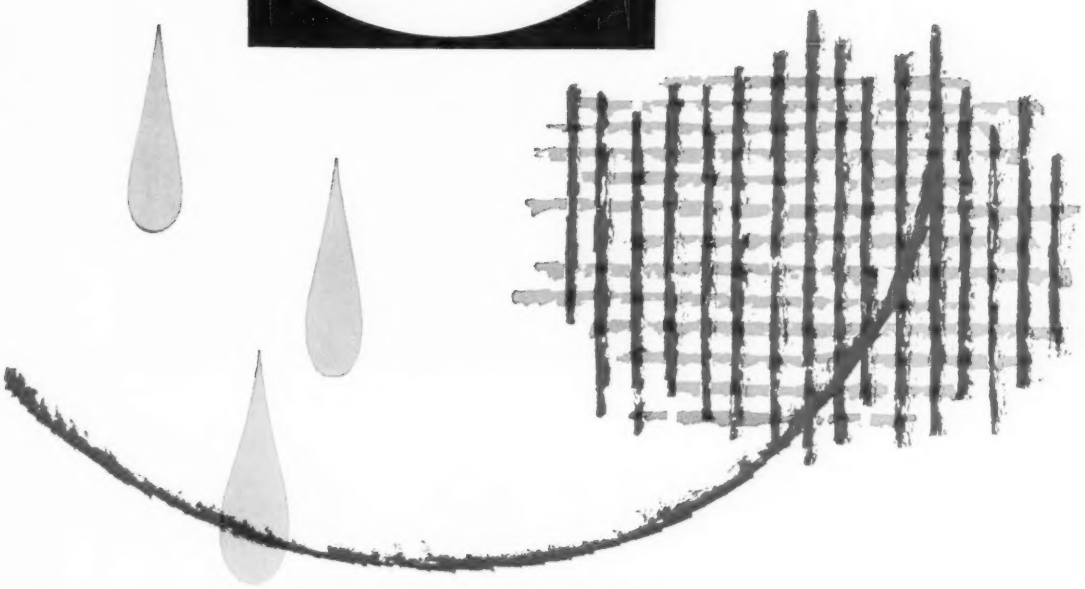
*Patent Nos. 2,610,363; 2,490,544; 2,412,357. Other patents pending.

Ideal Industries, Inc.
Bessemer City, N. C.

spotlight on

oxidation stability

in oleic acid



how Emersol Elaine eliminated uneven dyeing fault of a fiber lubricant

If you have a problem involving a "breakdown" or "change" in your products induced by aging or oxidation, then this customer experience will be of interest: *Case History No. 27-31 . . . The difficulties of uneven dyeing of yarns and fabrics in a textile mill precipitated a thorough investigation of all variables. The trouble was traced to this manufacturer's fiber lubricant which oxidized on the yarns. This led to only partial "oil" removal in scouring, which left sufficient residue to prevent uniform penetration of the dye.*

Since oleic acid was a constituent in this manufacturer's lubricant, a study of oxidation stabilities of double-distilled oleic acids from different producers was undertaken. Laboratory results showed that Emersol 221 White Elaine exhibited superior oxidation stability, and when substituted in his regular production, eliminated all previous dyeing difficulties.

This experience serves only as an example of the benefits derived from the outstanding oxidation stability of Emersol Oleic Acids. When this is added to their excellent color stability and resistance to rancidity, you get an unmatched combination that will make your products better, more appealing, and stay that way longer . . . and all at no extra cost. So, if you are not already benefiting from the Emersol Elaines, buy your next, and all oleic acid requirements from Emery.

Write Dept. MT3 for 20 page brochure titled "Emersol Oleic Acids."

Emery

Fatty Acids & Derivatives
Plastolein Plasticizers
Twitchell Oils, Emulsifiers

Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio

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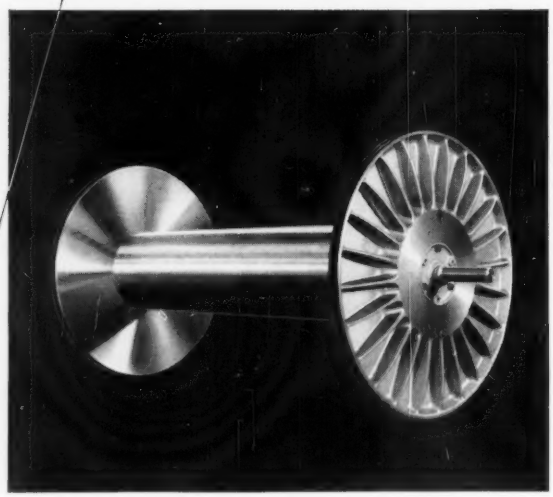
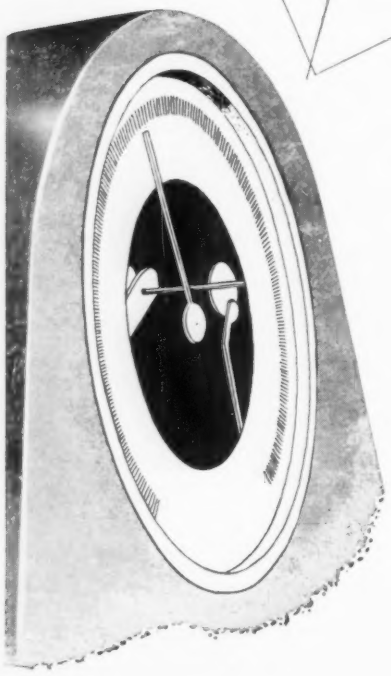
Warehouse stocks also in St. Louis, Buffalo, Baltimore, and Los Angeles
Export: Carew Tower, Cincinnati 2, Ohio

Beaming Nylon?



severe test

proves strength of new HAYES aluminum nylon beam



During load tests on a million-pound testing machine this Hayes Aluminum Nylon Beam withstood a load of 263,000 pounds without failure. With continued loading, the head casting cracked, — even then the beam still held a load of 80,000 pounds, which is considered sufficient for removal of nylon yarn without loss of material. There was no failure of the threads holding head to barrel. Thousands of these beams are now in use for beaming nylon.

The NEW beam is the only aluminum section beam being produced primarily for nylon and includes these features which make it of particular interest to the textile industry:

— available in 30″ and 32″ head diameters. 54¼″ traverse.
— heavy center hub construction, with 24 reinforcing ribs.
— ½″ minimum wall, high strength aluminum barrel.
—adaptable for use with all current makes of warpers.

This beam is merely another instance of Hayes long experience in the manufacture of light weight metal beams. Its greater head strength, increased rigidity, permanent running balance, and glass-smooth, rust-proof surfaces exist in all Hayes beams. Write today for complete information on Hayes beams.

HAYES INDUSTRIES, INC.
JACKSON, MICHIGAN

THE WORLD'S LARGEST PRODUCER OF LIGHT METAL BEAMS

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Reference Chart

of

BEMBERG® RAYON NOVELTY-YARNS

TYPE YARN	DESCRIPTION	DENIERS	FUNCTION	FABRIC END-USE
SHORT NUBBI NUBBI INTERRUPTED SERIES	High-low, non-mechanical, short entangled slub, irregular in size and spacing. (Also specials running part slub, part smooth).	150-200-300 400-600-800	Filling with silk, cotton, acetate, nylon, Chromspun*, Fortisan*, Dacron*, or Orlon* warps.	Lower deniers in dress and blouse fabrics. Heavier deniers for draperies, upholstery, bedspreads.
TYPE "B" CUPIONI	Longer entangled slub, irregular in size and spacing, but mechanically controlled for the Douppioni silk-look.	50-70-100 150-275-450 600	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps.	Dress, blouse, and shirt fabrics.
LONG TYPE "A" SLUB	Long, parallel, non-entangled slub for the true thick and thin look. Soft hand.	275-450-600 900-1250-1600 2500	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps.	Lower deniers in dress and blouse fabrics. Heavier deniers for draperies, upholstery, bedspreads.
TYPE "C" LONG SLUB WARP YARN	Long thick and thin, similar to Type "A" but filaments are more closed, making it suitable for warp or filling.	150-275-450 600-900-1250 2500	Both warp and filling. Warp with any filling, including Bemberg nubbi-yarns. Plied with spun flake yarns for warp and filling.	Warp and filling for dress and blouse fabrics. Warp with any filling for drapery, upholstery, and bedspread fabrics. Plied with spun flake yarns for men's suitings.
MEASLE YARN	Part tight, part loose filaments with different shrinkage . . . forming loop or boucle effect. In weaving, loops break through surface of fabric for decorative dot effect.	1200-2000-3000	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps.	Lower deniers as filling in dress and blouse fabrics. Heavier deniers for upholstery, draperies, bedspreads.
STRATA SLUB MULTI-STRATA SLUB MULTI-MULTI STRATA DREAM SLUB	Torpedo shaped slubs spaced: Strata, 9' apart; Multi-Strata, 6' apart; Dream, 18" apart. Multi-Multi Strata, 6' apart but shorter slubs than Multi-Strata.	150-275-450 600-900-1250 2500-5000	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps.	Upholstery, draperies, bedspreads.
FLAKE SLUB	Short, entangled slub similar to flake slubs made with staple yarn. This yarn must be plied with a supporting end for commercial running.	300-600	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps. As multi-colored decorative yarn. Plied with any Bemberg yarn.	Upholstery, draperies, bedspreads.
SPUN PLIED FLAKE	Part of the end running normal and part running with flake slub. Similar in softness and appearance to other flake, and will run in filling without being plied with a straight yarn.	300-600-900	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps. As multi-colored decorative yarn. Plied with any Bemberg yarn.	Upholstery, draperies, bedspreads.
GLITTER	A monofilament yarn with a metallic appearance.	300-450	Filling with silk, cotton, acetate, nylon, Chromspun, Fortisan, Dacron, or Orlon warps. As multi-colored decorative yarn. Plied with any Bemberg yarn.	Decorative purposes in all fabrics.

* *Chromspun, Fortisan, Dacron and Orlon are registered trade-marks.*

BEMBERG® RAYON NOVELTY-YARN COLORS:

Natural for piece-dyed fabrics. 33 direct skein-dyed colors for loom-finished fabrics. In addition to direct colors, all the above yarns can be skein-dyed in sunfast or vat colors.

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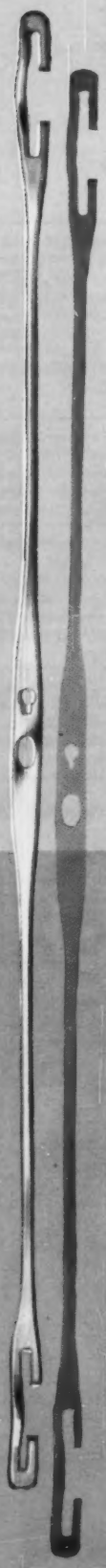

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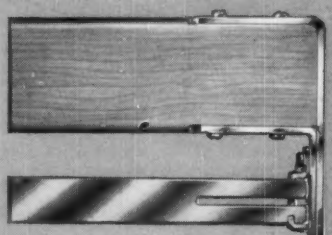
Take The Greatest Step Toward That Goal By Using Stehedco DRAWTEX HARNESS

- **Stehedco Drawtex Heddles and Frames are revolutionizing the textile industry with their efficient, trouble-free performance.**
- **They have proved themselves worthy of the Stehedco name by giving greatly increased production and higher quality goods.**
- **Many of the original Stehedco Drawtex Harnesses have been in constant use for over twenty years.**

The heddles are made of finest quality spring steel and highly polished to handle your most delicate yarns. Only Steel Heddle offers the patented rod slot hump, the shock absorber which is your insurance against heddle breakage. The exclusive spring effect guarantees quick and easy drawing-in by hand or machine. One heddle size can be used for a much wider range of yarn sizes and constructions, and every heddle is a repair heddle which can be added or removed at any position on the frame.

Frames are made of select fir lumber, straight and knot free. The new type D-2 end brace rigidly clamps the heddle rods so that there is no wear on either the brace or the rods, and yet the rods may easily be removed by slight pressure of a screwdriver to add or remove heddles.

The new rigid rod hook eliminates wear and need for replacement, and is easily adjusted with a screwdriver. It eliminates all warp streaks caused by the bunching of heddles at conventional type rod supports.



RIGID ROD HOOK

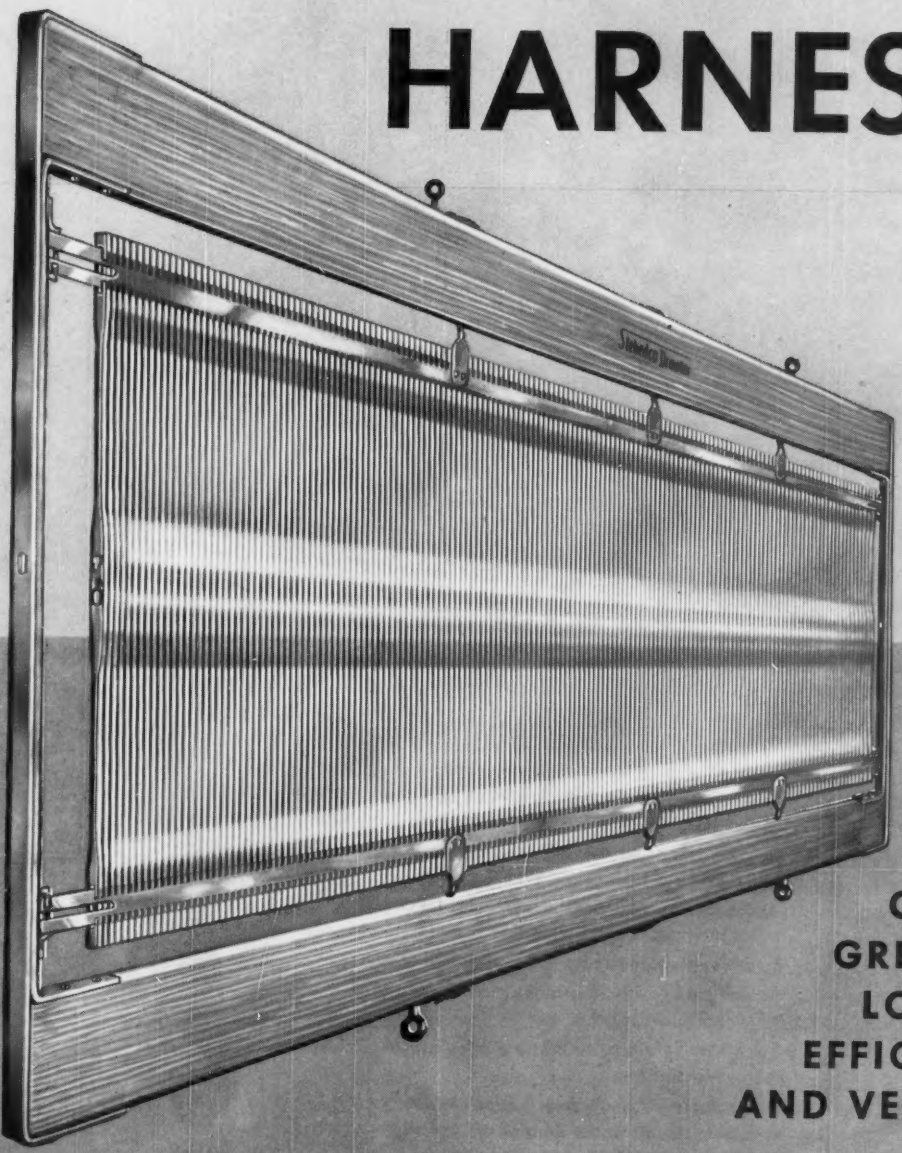
TYPE "D-2" END BRACE

YOU WILL PROFIT GREATLY BY INSTALLING STEHEDCO DRAWTEX HARNESS IN YOUR LOOMS

Ask our Field Engineers for Samples and additional Information about this Revolutionary Type of Harness.

Stehedco

DRAWTEX HARNESS



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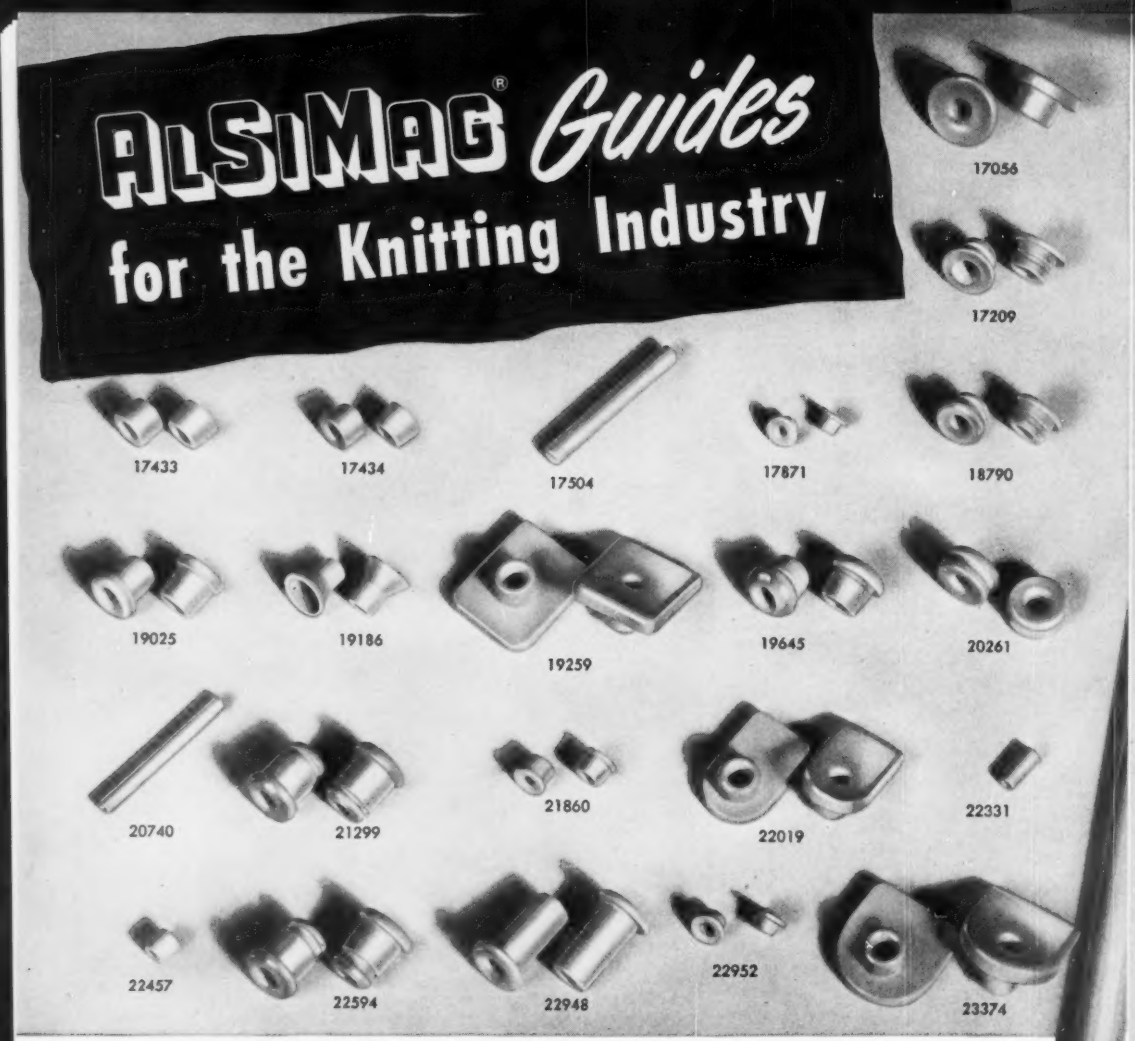
ALSIMAG® *Guides* for the Knitting Industry



USES

- Yarn Box Eyelets
- Trough Eyelets
- Snapper Eyelets—Tapered, Shouldered, Plate, Grooved
- Oil Cup Eyelets
- Stop Motion Eyelets and Inserts
- Carrier Tubes
- Trough Rods
- Tension Rods
- Tension Rings
- Drop Wire Rings
- Miscellaneous Guides for Special Purposes; for example: inserts for fixtures on Trough Floats

ADVANTAGES

1. *Quality.* Smooth, homogeneous material of great hardness. Uniform physically and dimensionally.

2. *Long Life.* Test these guides on finer denier synthetic yarns at high speed and high tensions. In every case reported to us, AlSiMag guides have shown a material improvement over any former guides used.

3. *Fewer Replacements.*

4. *Uniformity* of guides makes for uniform high quality in finished products.

5. *Lighter Tensions.* AlSiMag guides are available in controlled finishes.

6. *Electrically Conductive* guides (AlSiMag 193) are available to aid in the control of static.

TEST SAMPLES SENT ON REQUEST.

AlSiMag No. 22615
WEIGHT: 0.60 Gram
I.D.: 0.0935"
THICKNESS: 0.046"

AlSiMag No. 17805
WEIGHT: 0.450 Gram
I.D.: 0.438"
THICKNESS: 0.084"

AlSiMag No. 19185
WEIGHT: 0.212 Gram
I.D.: 0.385"
THICKNESS: 0.048"

AlSiMag No. 20041
WEIGHT: 0.306 Gram
I.D.: 0.469"
THICKNESS: 0.050"

AlSiMag No. 20776-A
WEIGHT: 0.229 Gram
I.D.: 0.437"
THICKNESS: 0.050"

AlSiMag No. 20776-B
WEIGHT: 0.166 Gram
I.D.: 0.437"
THICKNESS: 0.033"

AlSiMag No. 21088-A
WEIGHT: 0.322 Gram
I.D.: 0.482"
THICKNESS: 0.050"

AlSiMag No. 21088-B
WEIGHT: 0.180 Gram
I.D.: 0.482"
THICKNESS: 0.028"

AlSiMag No. 21501
WEIGHT: 0.408 Gram
I.D.: 0.625"
THICKNESS: 0.062"

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MODERN
TEXTILES MAGAZINE

Publisher's Viewpoint

Responsibilities Increase with Output

Use of man-made fibers in textile applications continues to move forward in a heartening manner. In 1955, output in the United States reached an all-time high, according to the figures in the February issue of the *Textile Organon,* statistical bulletin of the Textile Economics Bureau, Inc.

The actual figure for all man-made fibers made in the United States last year was 1,718,200,000 pounds. This was 20% greater than 1954, and 14½% more than production in 1951, the previous record year. For further data, see page 72.

Of special interest is the figure for non-cellulosic and textile glass fibers. Here the total was 457,500,000 pounds, a new record. This output was 33% more than the previous high figure of 343,800,000 pounds in 1954.

How far and how fast non-cellulosic fibers have come in the past five years is evident if we glance at the total 1950 output. The figure was 145,900,000 pounds.

During these last five years, the increasing output of non-cellulosics has brought much to the textile industry that bare production figures do not show. Among these new elements has been bewildering change, the rapid appearance of a swarm of different and complex problems for millmen and finishers as well as new opportunities to bring out exciting new cloths and earn new profits.

Impressive as the 1955 figures are, they cannot reflect the many hours of hard work, of baffling frustrations, of heady successes the non-cellulosics have meant to both the men in the mills and the men in the laboratories. Because of this strenuous experience with the newer fibers, the textile industry today is more mature, more calm. The industry is thus less likely to be swept off its feet by the alluring promises of astonishing fabrics held out by champions of still newer fibers.

Today we know there are no miracle fibers. Assuredly, our industry has learned in the last five years, that new fibers, no matter how outstanding their advantages, are likely to have some drawbacks offsetting, to some extent, their good points.

Meanwhile, the men who market the new man-made fiber fabrics have been learning that there are no miracles for them either. They have learned that fabrics which in certain end uses seemed to "have everything" after the first flurry of consumer interest had past, turned out to have practically nothing.

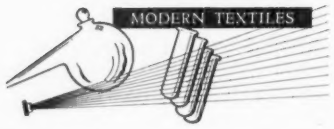
The men who market the newer fabrics have learned also that the public is stubborn and conservative as well as fickle and unreliable. Today it wants acetate; tomorrow it is nylon, and the next day it may be cotton, rayon or wool. The men who merchandise our new fibers have thus learned that nothing is easy; they have learned that the best way to make money is to be sure that the product is right; that it serves the purpose for which it was intended before it is offered for sale.

There is no doubt about it: as the production curve of the newer fibers continues to mount, the industry which uses these fibers is gaining in its sense of responsibility. For when you are producing a few million pounds a year of a fiber, you can afford to be lighthearted about end-use applications and misapplications. But when production approaches the half-billion mark, there is too much at stake for irresponsibility.

A. J. McCullough

PUBLISHER

OUTLOOK in textile marketing



By Robert C. Shook
Textile Economist

A Look Behind the Figures — The grand total of man-made fiber production in 1955 showed a very gratifying increase from the 1954 level (from 1,429 million pounds to 1,718 million pounds) and was the greatest on record. But the advance in total production conceals some disturbing losses for man-made fibers, in some very important market. Most of the increase of approximately 290 million pounds, in fact, was accounted for by a very limited number of end uses:

- For tires and related uses, shipments of high tenacity rayon yarn increased by some 82 million pounds, and were the second highest on record.
- For carpets and rugs, blankets, and a few "other" domestic end uses, shipments of staple, chiefly rayon increased by approximately 34 million pounds and were the highest on record.
- For non-cellulosic plus textile glass fiber, the increase amounted to 114 million pounds, and shipments were the highest on record.

The remainder of the increase, about 60 million pounds, was accounted for by rayon and acetate filament yarns in knit goods, woven fabrics and small miscellaneous uses. But these increases occurred during a very vigorous business recovery, and the 1955 total remained well below the average of the preceding five years.

The gain for non-cellulosic fibers is not surprising. This group is now, and for some time will be, at a stage where vigorous expansion is to be expected. But it should be plain that the cellulosic fibers, which in volume are second only to cotton:

a) are fully vulnerable to the ups and downs of the textile cycle; and,
b) have, in fact, lost some ground in both consumer and industrial markets, to both natural and non-cellulosic fibers.

Cellulosic Producers Fight Back — This change in the position of rayon and acetate has been recognized by producers, and the attempt to combat it has taken two main forms:

1) *Commercialization of basic research.* Examples are the improvement in carpet rayons, and rayon tire yarns, and the development by one producer of a new cellulosic fiber, triacetate, tradenamed Arnel.

2) *More aggressive merchandising by fiber producers to the apparel and home-furnishings trades.* Many new merchandising programs have been developed.

The first specializes and improves the fiber for specific end uses. The second seeks practical means to stimulate consumer demand for products containing the fiber, and thus to stimulate the business of direct customers, who buy and process the fiber.

These new merchandising programs take many different forms. But in addition to their concern about the profitable operations of direct customers, all of them have another point in common—a *heavy emphasis on blends, in recognition of the fact that natural fibers, in many cases, can help in selling man-made fibers.*

Changes in Fiber Preference — This "trend to blend" is both realistic and encouraging since in many markets during the past year or two silk, cotton and wool have grown in popularity. And current trends suggest that the fashion importance of these fibers will gain further in 1956. For example:

1. Silk is being used extensively, in some Spring lines almost exclusively, in higher priced dresses. And many retailers, having had a favorable experience with silk and silk blends in lingerie, are searching hungrily for additional supplies.

2. In women's suits, which have lost sales volume steadily since the early pre-war peak, fine light worsteds have stimulated initial retail orders for spring. Retailers, who are anxious

(Continued on Page 56)

To Skinner & Sons immense reputation for high quality goods, the founder's grandson, Stewart Kilborne, has added up-to-date ideas and lively styling

THERE'S SOMETHING NEW AT SKINNER'S

By Jerome Campbell
Editor, MODERN TEXTILES MAGAZINE

YOUNG LOVE, with all its ardors, high sentiments and impatience with parental counsels of "wait until you're older" may be said to have brought Robert Stewart Kilborne to the textile business. Back in 1925, when Kilborne was 20 and a muscular junior at Yale, he was in love with Barbara Briggs, a young lady studying at Connecticut College for Women.

They had known each other for years, having spent much time together in summers on Cape Cod where Barbara's parents had a place near the Kilborne summer cottage. By the time Kilborne had reached his junior year, he felt it necessary to see Barbara winters as well as summers. And so nearly every night he drove at breakneck speed on his motorcycle from New Haven up to New London to see his girl.

They were anxious to marry, but the parents of both counseled delay. "Wait until you graduate", they were told, and Kilborne's father added that, in Stewart's case, delay was necessary since, in those sterner days, married undergraduates were not permitted at Yale.

The young people, however, decided not to wait. One day soon after Thanksgiving, Barbara slipped out of her dormitory, met Stewart and they hastened down to Chestertown, Md., to be married in that American Gretna Green.

With a bride and household to support, and presumably barred from the celibate confines of Yale College, Kilborne looked around for a gainful occupation. He was just about to sign up for a job in the diamond business in South Africa, when his uncle William, who was in charge of the Skinner plant at Holyoke, offered him employment in the family weaving business.

Uncle William, like most of the members of the Kilborne, Skinner and Briggs families, had been shocked at the elopement of the now Mr. and Mrs. Robert Stewart Kilborne. But Uncle William was a business man and hence a realist: to his mind, the grandson of the original William Skinner was better employed in the family textile mill than the diamond mines of Africa.

Young Stewart, after a dignified period of delay during which he carefully weighed the advantages of a career in textiles as against a job in the diamond fields, accepted his uncle's offer. Establishing a home for his bride in South Hadley, Mass., rather than South Africa, he went to work at the Skinner plant in Holyoke, rising before dawn to get to the mill at starting time which in those less pampered days was 7 A.M., and working until quitting time which was 5 P.M.

The textile firm with which Kilborne was getting acquainted the hard way had been established in 1848 by William Skinner, who at 18 had come to Massachusetts from London. His training and experience entitled him to call himself a master silk dyer. That title, in one not yet out of his teens, shows that he had made an early start in his trade and indicates a character and devotion to work far beyond that usually found in men so young.

Soon after his arrival in New England, Skinner found work with a man named Warner, who was a maker of silk thread. Within a short time young Skin-

London born, the first William Skinner settled in New England and founded the family weaving business. He made Skinner's cotton-backed satins a household word.

ner had married Warner's daughter and become his partner in the silk thread business of Skinner and Warner in Northampton.

In 1848, Skinner established his own business in a nearby hamlet which in time was appropriately called Skinnerville. There his business grew and prospered until 1873. During that year a familiar New England occurrence, the collapse of a dam, swept away Skinner's mill, destroying his business. But so great was Skinner's reputation for successful fabric manufacturing that both Worchester and Holyoke completed with each other in offering him tax concessions and a free plant if he would start his business again with either of them. Skinner chose Holyoke, where the firm has remained until this day.

In his new plant Skinner diversified his products and expanded his volume. He built a good business making braids which, in those days, were widely used by men's tailors to cover loosely sewn seams. As America's population grew and its living standards moved higher, more and more women wanted silk fabrics for their dresses. William Skinner was quick to see that there were opportunities for profit and steady growth in meeting this demand. He began to weave good quality silk satins, using, as was customary in those days, linen for the back of the lustrous cloth.

But linen was expensive and its use helped keep high the price of satin. Meanwhile, New England mills near Skinner's Holyoke plant were spinning better and better cotton yarns at far less than the cost of linen. "Why not," Skinner thought, "use some of these fine cotton yarns in my satin constructions?" Soon Skinner cotton back satins were winning for themselves an enviable reputation for their high quality.

This reputation was something which William Skinner regarded highly and which he strove mightily to maintain and increase. Skinner satins were guaranteed for quality by their maker. No weighting was used and Skinner made a point of weaving his name proudly into the selvages.

Moving forward on the steadily growing tide of demand for Skinner satins, the company over the years greatly expanded its sales and output. In 1902, the year old William Skinner died, the firm completed a new mill in Holyoke, three city blocks long, the largest silk weaving establishment in the world under one roof.

Old Skinner's death brought no interruption in the firm's prosperous activities. His sons, William and Joseph, who had long been working in the business, took over the management and continued their father's policy of vigorous merchandising and outstanding quality. Ownership of the company was set up in a Massachusetts trust, the shares being distributed among the beneficiaries of Skinner's will. This set-up, incidentally, still prevails.

Trustees Run Company

A Massachusetts common law trust is a rare form of company organization which is at once something like a partnership and something like a corporation. Like a partnership it is a private organization with books closed to the public, but it is taxed like a corporation, and has shareholders which, in this case, are descendants of the original William Skinner. Its affairs are directed by a board of trustees which currently is composed of Stewart Kilborne, his brother William, now on leave from the company to serve as an aide to the Secretary of Commerce; and two other grandsons of the first William Skinner, William H. Hubbard and William Skinner.

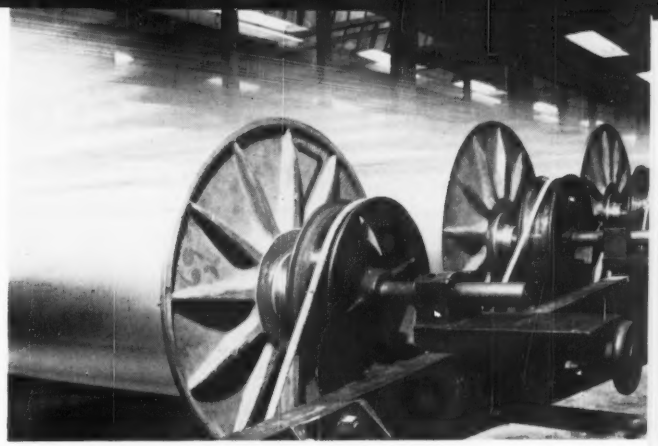
When they took charge in 1902, the sons of William Skinner neatly divided the responsibilities of management. William took charge of sales in New York

(Continued on Page 64)

Proudly bearing the company's watchwords, "Look for the name in the selvage", Skinner piece goods for years bore these indian head labels.

buy rayon on beams to cut mill costs

By William P. Crawley



These 21" by 42" tricot spools are here doing double duty as section beams in a slasher creel

RAYON filament yarn on beams constitutes a major supply item in today's exchange between rayon producer and textile mill. This is in contrast to the picture of only a few years ago when the cone was the standard package for warp as well as filling yarns. Today, rayon filling yarns are supplied either in cakes or on cones, but normal twist warp yarn is packaged largely on beams. The site of warping in many instances has been moved from the textile mill to the rayon producer's plant.

Recognized advantages of the beam supply package for warp yarns are: better mechanical quality; improved cloth dyeing characteristics; absence of knots; less waste, and beamed yarn at the price of coned. Until recently, however, this yarn put-up method lacked versatility; and some textile mills, because of their short yardage requirements, high or low endages or varying widths, could not use beamed yarn.

The Textile Research Department of American Viscose Corp. has worked out in various deniers practical combinations of endages and yardages in a variety of beam sizes to fit the requirements of almost every type of textile operation including warp knitting, broadloom and narrow fabric weaving and industrial-type laminations with sheet materials such as cellophane or cellulose acetate film.

Section Beams

The section beam is the oldest and most familiar of modern beam packages. Standard width section beams, measuring 54¼" between flanges, are being supplied in 30", 32" and 36" flange sizes. Some mills are slashing from these beams onto loom beams 72" wide and even wider. Considerable variation in ends per beam and yardage is possible, allowing for good flexibility in broadloom widths.

Tricot Spools

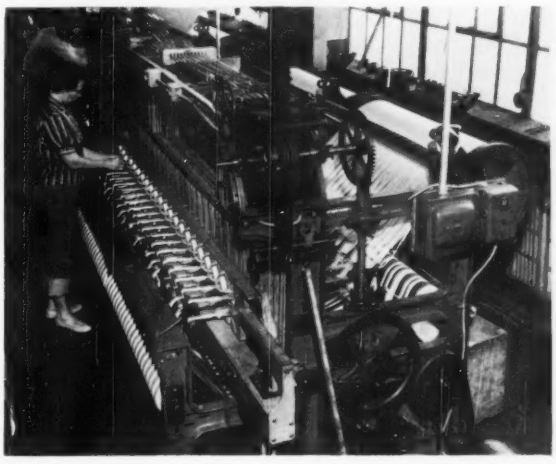
Also typical of modern trends in slashing is the use of tricot spools in place of section beams in cotton system slashing as illustrated at Pennsylvania Ribbon Mfg. Co., Philadelphia, Pa. In this mill, ribbons are woven from beams corresponding very closely in width to tricot spools measuring approximately 40" between flanges. Loom speed and weaving efficiency have been increased as a result of changing to the use of yarn on this type supply package. It is of considerable benefit and convenience, therefore, to the mill to be able to purchase their warp yarns already in sheet form ready for slashing. Tricot spools with the use of steel shafts and simple adapters can easily be used as section beams on conventional slasher creels. This possibility is of particular interest to some mills interested in making shorter yardages, as is sometimes required for sample work.

The adapters are machined from aluminum to fit the bore of standard tricot spools and a 1¼" diameter steel shaft of suitable length. Two-step adapters are necessary where 14" and 21" diameter tricot spools are to be used interchangeably because of the differ-

(Continued on Page 52)

Steel shaft and adapters being installed to convert a tricot spool (21" by 42") to a section beam

Narrow fabric loom speed and weaving efficiency have been increased in this mill as a result of changing to the use of yarn supplied on tricot spools



MILL TEST PROCEDURES

a new series on quality control

By Norbert L. Enrick*

Tests for Drawing and Roving

Third in a Series

FOR ROUTINE quality control work in drawing and roving, the following tests assume special importance:

—Drawing Spoon and Trumpet Check
—Roving Tension and Twists Check
—Roving (and Spinning) Horizontal Traverse Check.

The purpose, methods of sampling and testing, and evaluation of test results are covered in each of the test procedures furnished. A convenient testing form, for use with the Drawing Spoon and Trumpet Check is provided in Fig. 6. A form for automatically recording the roving tensions and inserting the pertinent additional test data on the Roving Tension and Twists Check is shown in Fig. 7.

Roving Tension and Twists Check

The uniformity and adequacy of tensions and twists in roving production is checked with the Belger Roving Tester, one of the earliest machines developed for the automatic testing and recording of quality characteristics along a continuous length of strand of textile material. Yet, while finding much favor and consequently constant use by some mill men, others have questioned the value of this test. For lack of any other instrument in the past, this type of test was then omitted entirely.

Most probably, the answer to these conflicting views is that, where applicable and where properly used, this type of test can give valuable information. However, much depends upon skill in using the instrument. For example, the testing arm of the instrument must be weighted properly with tension weights. A ready-made scale is furnished with the tester, showing the tension weighting to be applied for various cotton counts. It is obvious, however, that for synthetic staple the mill should develop its own table for each type of fiber processed. Similarly, for cotton fibers it may be preferable not to use the ready-made tables, since they do not include the important effect of fiber fineness and the degree of parallelization achieved in the prior drawing processes.

An outstanding example of the successful use of this tester was recently provided by the Southern Regional Research Laboratory in its research into optimum roving twists, using this instrument. As a result, a chart was developed showing the optimum roving twists for the range of various counts, fiber lengths and finenesses ordinarily encountered in the cotton mill. This chart is reproduced for convenient reference in Fig. 8, since a large number of those mills who used it appear to have found it useful in their efforts to maintain optimum roving processing conditions for yarn quality.

A relatively new device, the Brush Tension Analyzer, developed in co-operation with the Textile Research and Development Department of American Viscose Corp. may prove simpler to operate and superior in results, as compared against the older method. However, to date not enough experience has been gathered with the new instrument to permit writing up a routine test procedure.

As will be noted from the test procedure, the Belger roving tester also furnishes an indication of the evenness of short-term lengths of roving. However, in this area of work there can be little question that modern electronic evenness testers usually furnish more sensitive results. Procedures for such testers will be covered later, as applicable to all textile strands, from sliver through yarn.

(Continued on Page 37)

Fig. 6

Werner Tex. Cons.
New York 17, N. Y.

DRAWING SPOON & TRUMPET CHECK

Mill: | Breaker or Finisher | Date Started: | Completed:

Del. No	1	2	3	4	5	6
Frame No.						

* Institute of Textile Technology, formerly with Werner Textile Consultants.

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Get in touch with our nearest office for a copy of this helpful booklet, for Bulletin #420 giving fastness ratings on Nacelan Pink 3B and for a working sample of this dye.

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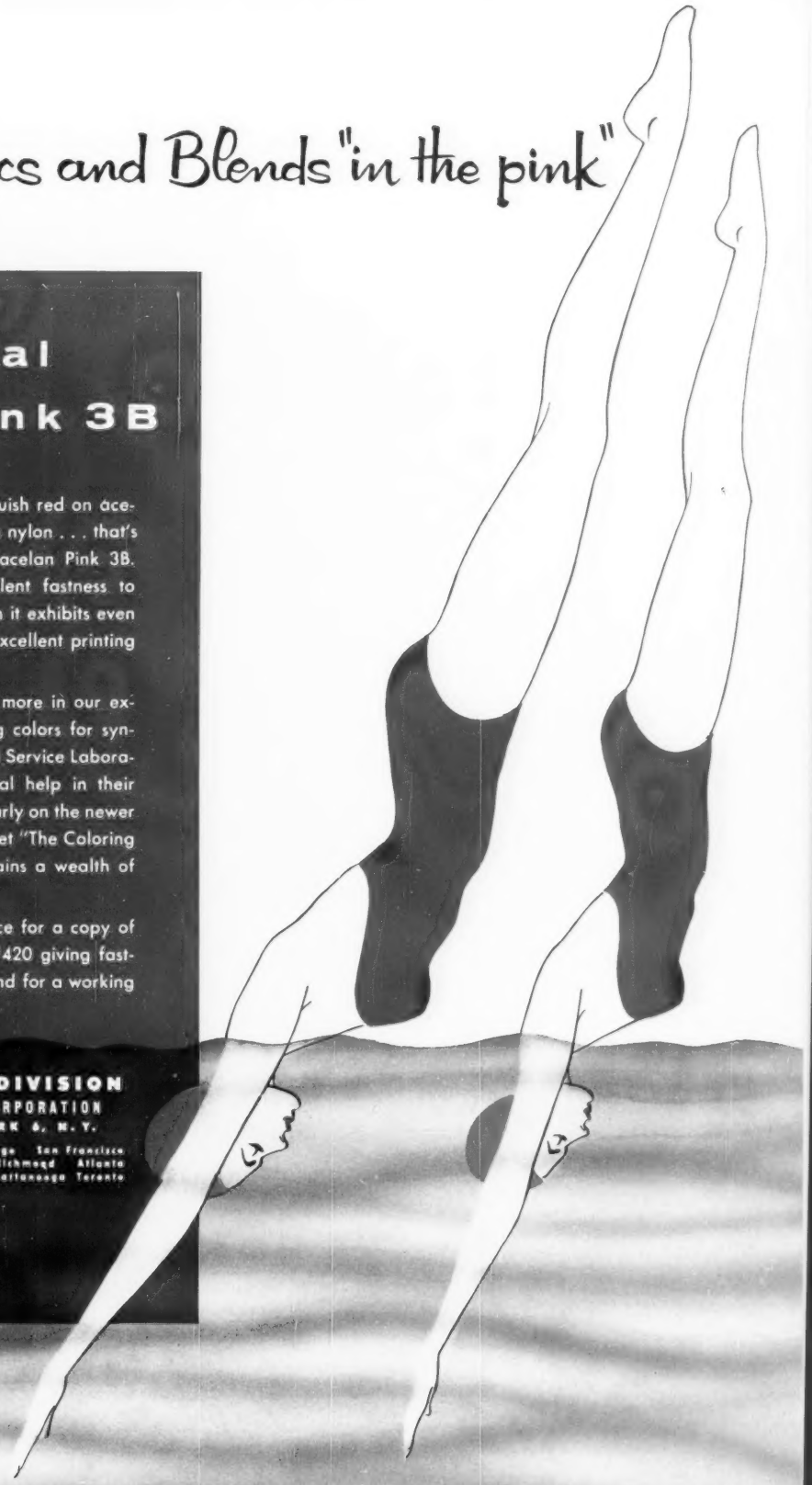


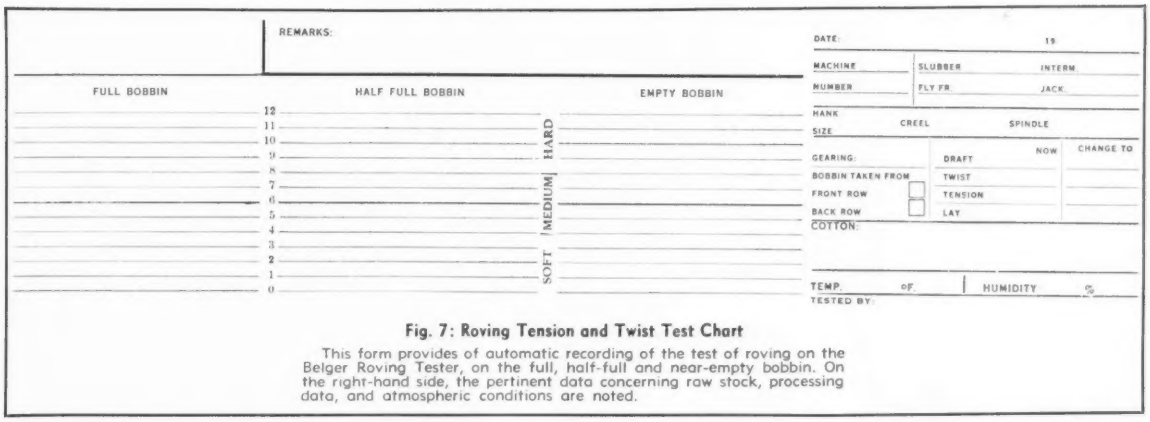


Fig. 7: Roving Tension and Twist Test Chart

This form provides of automatic recording of the test of roving on the Belger Roving Tester, on the full, half-full and near-empty bobbin. On the right-hand side, the pertinent data concerning raw stock, processing data, and atmospheric conditions are noted.

Tests on Lap Winders

As part of the drawing operation, some mills have lap winders, which prepare a lap of sixteen ends of card sliver to be fed into a five-roll drawing frame. Where such equipment is used, it is desirable every week to make an inspection on each winder to assure that the pressure weights are placed on the desired pressure settings. Also, every three months it may be desirable to test the lap off each winder on a Saco-Lowell Lap Meter for yard-to-yard variation in weight. From this yard-to-yard variation, a Coefficient of Variation may be computed, and it may also be observed whether laps are unduly light at start-up. The performance of this test runs parallel to the Picker Lap Meter Variation test, for which the Saco-Lowell Lap Meter was originally developed. Accordingly, the test procedure is not repeated here.

Frequency of Testing

The following are recommended frequencies from which the individual mill may wish to decide for its own purposes on how often to perform each type of test on given equipment:

1. *Drawing Spoon and Trumpet Check.* This test can be performed very quickly, requiring only a few seconds for each spoon and trumpet. Because of its importance on quality, the test should be so arranged as to check all breaker and finisher drawing frames once per week.
2. *Roving Tensions and Twists.* Each frame should be checked weekly.
3. *Roving (and Spinning) Horizontal Traverse.* On roving frames, this test should be performed once every five weeks, covering each frame. However, when this test is performed on spinning frames, it may be permissible to drop the frequency to once every ten weeks. The reason for this is that the thickness of strand is much finer in spinning, and therefore relatively less damage can be caused where a traverse motion does not fully cover the permissible width of the roll. On the other hand, if the traverse is excessive, thereby causing a high rate of ends down, it would be likely to be discovered by other (weekly) tests, such as for spinning idle spindles.
4. *Roll Settings Check.* Roll settings should be checked after each frame maintenance overhaul, or else on a routine basis every ten weeks.
5. *Speed Tests.* Front roll and main shaft speeds in drawing and roving should be tested on all frames every five weeks, so as to assure that standards are maintained for quality and production rates.
6. *Evenness Testing.* In drawing, it is desirable to check at least one delivery per frame each week, since the heavy weight of stock processed often causes out-of-alignment conditions which can readily affect many thousands of yards of the final yarn. In roving, however, testing can usually be reduced to 20% of the frames or less each week, using two to four bobbins per frame.

It will be noted that tests for roll settings, speeds and evenness are alike in basic principle for drawing, roving and spinning, and in some instances, carding. These tests are therefore incorporated in more general procedures for each type of test, independent of the particular processing equipment involved; and will be furnished later.

General Considerations

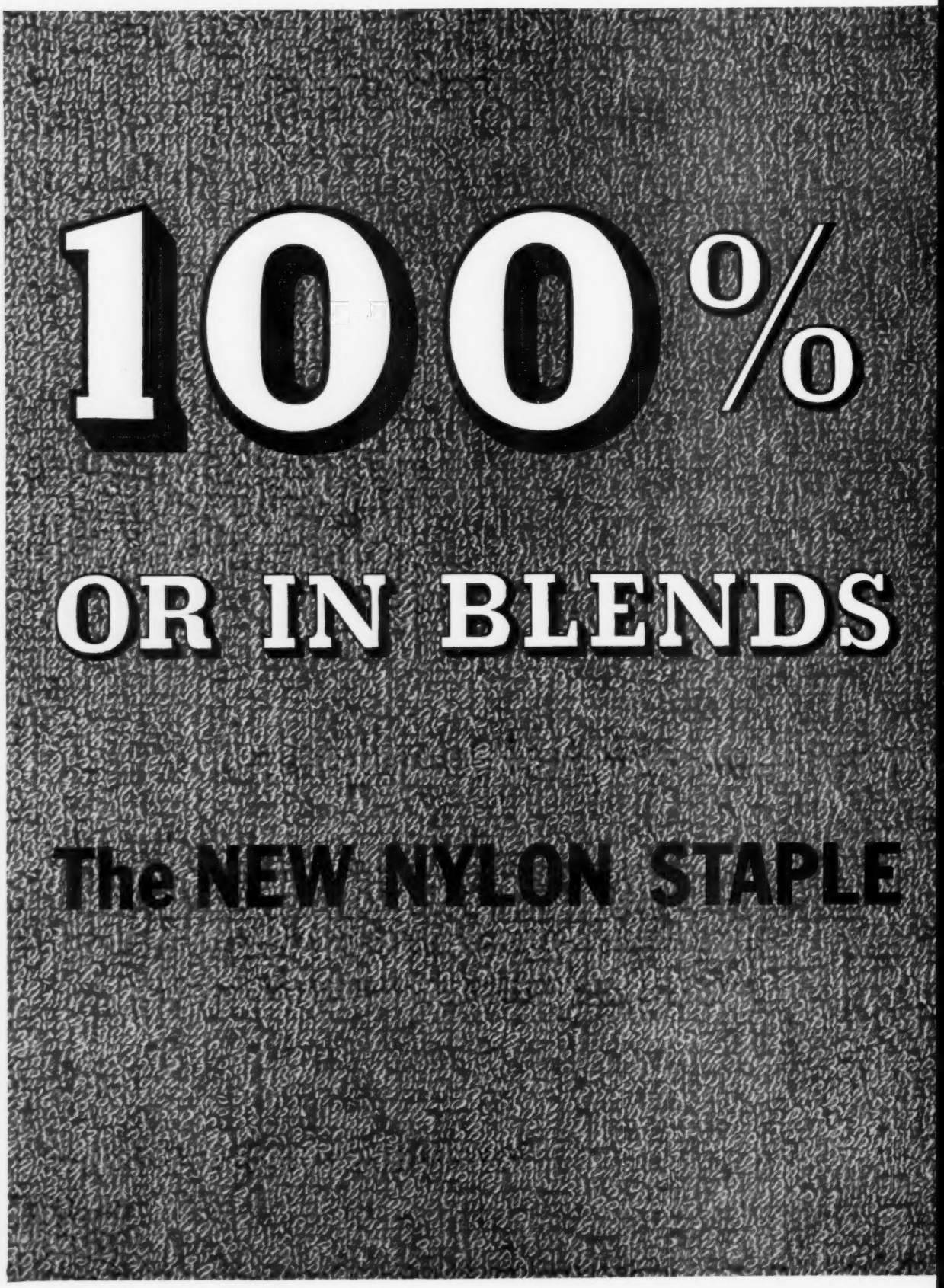
Modern textile science has not yet been able to give us a practical and simple test to determine an extremely important quality characteristic of drawing and roving stock. This is the degree of fiber orientation or parallellization accomplished and the success with which each process has straightened those fibers that may have been embedded in hooked or doubled-over form in the carded sliver. Yet, these properties do affect the strength and uniformity of the final yarn. Therefore, in performing tests and checks of a research nature in drawing and roving, care must be exercised. For example, a mill may experiment with different settings and draft distributions in drawing and roving, ending up with test results that would seem to indicate an improved drawing sliver or roving. However, before making a final judgment, yarn should be produced from the experimental stock and this yarn should then be tested. In this manner, the hidden effect of those characteristics for whom we cannot now test, will be revealed in the yarn quality. It should be noted that the limitations of sliver and roving tests mentioned here apply to mill experimentation and research; but do not detract from the value of the tests furnished here for routine quality control work.

ROVING TENSION AND TWIST TEST

Purpose

The uniform draftability of roving depends upon maintenance of even tensions and twists throughout

(Continued on Page 40)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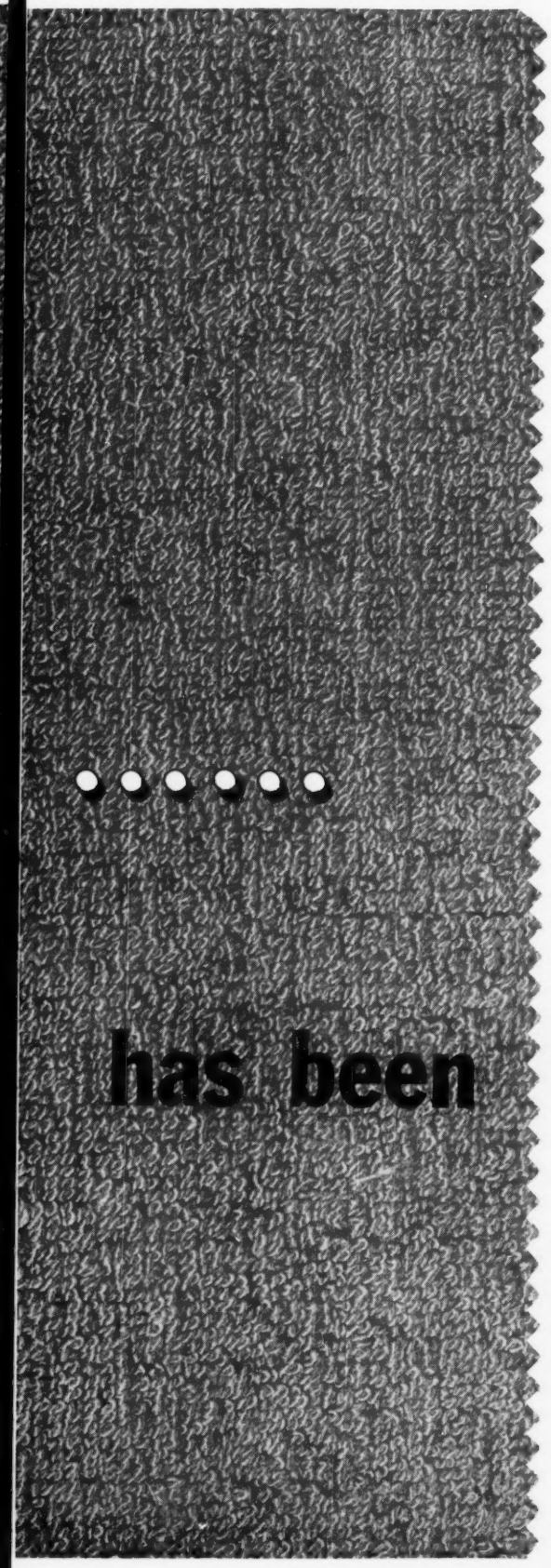
OR IN BLENDS
The NEW NYLON STAPLE



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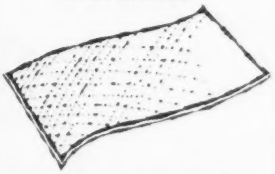
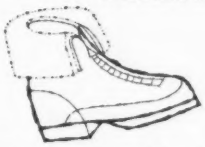
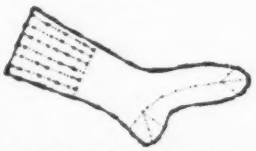
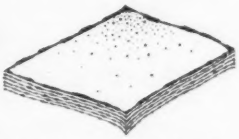
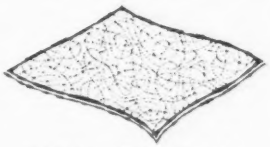
PROVED!

CARPETING*  100% and in blends	**STADIUM-BOOT INTERLINERS***  100% and in blends
UPHOLSTERY* 100% and in blends	**SOCKS***  100% and in blends
BONDED FABRICS*  100% and in blends	**NON-WOVEN FABRICS***  100% and in blends
INDUSTRIAL FABRICS* 100% and in blends	* The New Nylon Staple is currently being used in these industries...both 100% and in blends.

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Tests for Drawing

(Continued from Page 37)

the bobbin, from start-up to full package. The success in accomplishing this objective is measured on the Belger Automatic Roving Tester.

Equipment Required

Belger Automatic Roving Tester with Automatic Recorder.

Sampling

Test two bobbins per frame, one from the front row, one from the back row.

Procedure

1. Using the chart provided on the tester, select the proper tension weights to be used for cotton fibers. On cut-staple synthetics, these weights should be established from actual trials and experience. Apply these tensions.
2. Thread the roving in and start the apparatus.
3. Run twenty yards of roving, one length from the full bobbin, one length from the half-full bobbin, and one length from the near empty bobbin.

Evaluation

Quality of roving is evaluated from the following interpretations of the line recorded on the test chart:

Case	*When Line Runs as Follows:*	*This Usually Indicates:*
1	Straight across Chart	Even Tension
2	Diagonally across Chart	Uneven Tension
3	Close to Top of Chart	Excessive Twist
4	Close to Bottom of Chart	Very Low Twist
5	Width of Inch-to-Inch Variation greater than 3 horizontal Chart Lines	Uneven Roving

Off-standard test results may indicate one or more of the following conditions: Improper cone-belt starting position, inadequate or excessive tension gearing, improper bobbin build cone gear, improper lay gear for coils-per-inch, twists not at optimum for the stock run, and unbalanced flyers.

DRAWING SPOON AND TRUMPET CHECK

Purpose

Unless the knock-off motions of spoons and trumpets on drawing frames are operating properly, unsatisfactory sliver will be produced. For example, on a drawing frame with six doublings, if there is a creel break on one of the cans and the frame does not stop, the resultant sliver produced will be excessively light. For this reason it is essential to periodically check that all spoons and trumpets are knocking off properly and are in good mechanical condition.

Occasionally, waste may clog and inactivate a knock-off mechanism. This should be noted by the operator and corrected at once.

Testing Equipment

Clip board unto which a recording form can be mounted.

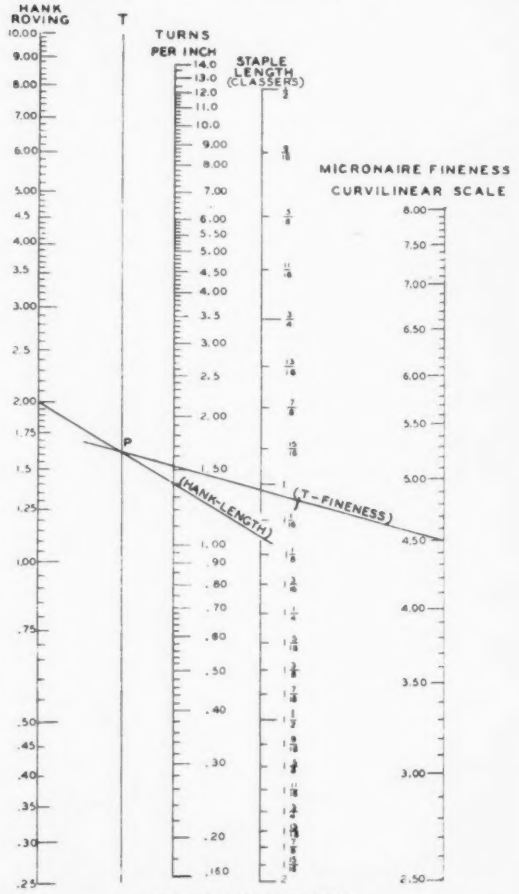
Procedure

It is usually most efficient to have two persons work together in performing this test.

1. One person should walk along the back of the frame and lift each individual sliver off its spoon.
2. The other person should note and record any spoons which, upon lifting of the sliver, do not stop the frame.
3. Next, the first person should walk along the front of the frame, lifting each trumpet.
4. Again, the second person should note any occurrence where the frame does not stop upon such lifting of the trumpet.

NOMOGRAPH FOR ROVING TWIST

$$\text{TURNS PER INCH} = \frac{.50(\text{FINENESS})^{\frac{1}{2}}(\text{HANK ROVING})^{\frac{1}{2}}}{\text{STAPLE LENGTH}}$$



KEY TO NOMOGRAPH

Assume a 2.00 hank roving with cotton of a staple length of 1 3/32" and a fineness of 4.5. Connect the hank roving with the length, intersecting line T at point P. Connect this point with the fineness. This line will intersect the twist line at the correct twist per inch to use for carded cotton 1.53 turns per inch

Fig. 8

Evaluation

Where the knock-off mechanism is found to be inactivated merely due to clogging waste, an occasional mechanism may be corrected immediately by one of the testers. However, if the percentage of such clog-ups is 5% or over, it should be noted and reported. Similarly, any damaged or improperly functioning mechanisms caused by wear or maladjustment, should be reported so that corrective action can be taken by the maintenance crew.

ROVING AND SPINNING HORIZONTAL TRAVERSE CHECK

Purpose

The horizontal traverse motion on roving and spinning frames should be set as wide as possible, so as to insure uniform wear and thereby longer life of the top rolls. This also benefits yarn uniformity. On the other hand, an excessively wide traverse motion would cause the stock to fall outside the roll and thereby produce excessive ends-down in roving and spinning.

Equipment Required

Six-inch steel rule.

(Concluded on Page 93)

Yellow:	Cibalan Brilliant Yellow 3GL
	Cibalan Yellow FGL
	Cibalan Yellow GRL
	Cibalan Yellow 2BRL
Orange:	Cibalan Orange RL
Brown:	Cibalan Brown VRL
	Cibalan Brown 5RL
	Cibalan Brown 2GL
	Cibalan Brown BL
	Cibalan Brown TL
Red:	Cibalan Scarlet GL
	Cibalan Red 2GL
Bordeaux:	Cibalan Bordeaux GRL
	Cibalan Bordeaux RL
	Cibalan Bordeaux 3BL
Violet:	Cibalan Violet RL
	Cibalan Corinth BL
Blue:	Cibalan Brilliant Blue GL
	Cibalan Blue BRL
	Cibalan Blue BL
	Cibalan Blue 3GL
Green:	Cibalan Green GL
Grey:	Cibalan Grey 2GL
	Cibalan Grey BL
BLACK:	CIBALAN BLACK BGL

C I B A

Cibalan® Brilliant Yellow 3GL

brings new brightness in a fast yellow for wool, nylon and silk.

Cibalan Yellow FGL

has a golden yellow color with very good light fastness on wool.

Cibalan Brown VRL
Cibalan Brown 5RL

add the desired reddish cast under artificial light needed in matching shade standards.

Cibalan Brilliant Blue GL

dyes a fast bright blue or combines with Cibalan Brill. Yellow 3GL for dyeing Kelly greens.

Cibalan Black BGL

Wool: Simple method of application; can be applied to raw stock, slubbing and yarn, in package machines and also to piece goods. The dyed wool possesses excellent spinning properties and a good hand.

Silk: Attractive shade and high fastness properties on yarn and fabric.

Nylon: Has good affinity and gives a full black of excellent fastness on nylon. Used for yarns, crimped yarns, woven and knitted fabrics, hose. Also yields even shades on wool/nylon unions.

Printing: Brings high fastness to prints of wool, silk or nylon.

Leather: For producing blacks and dark greys on gloving and clothing leathers, with good fastness.

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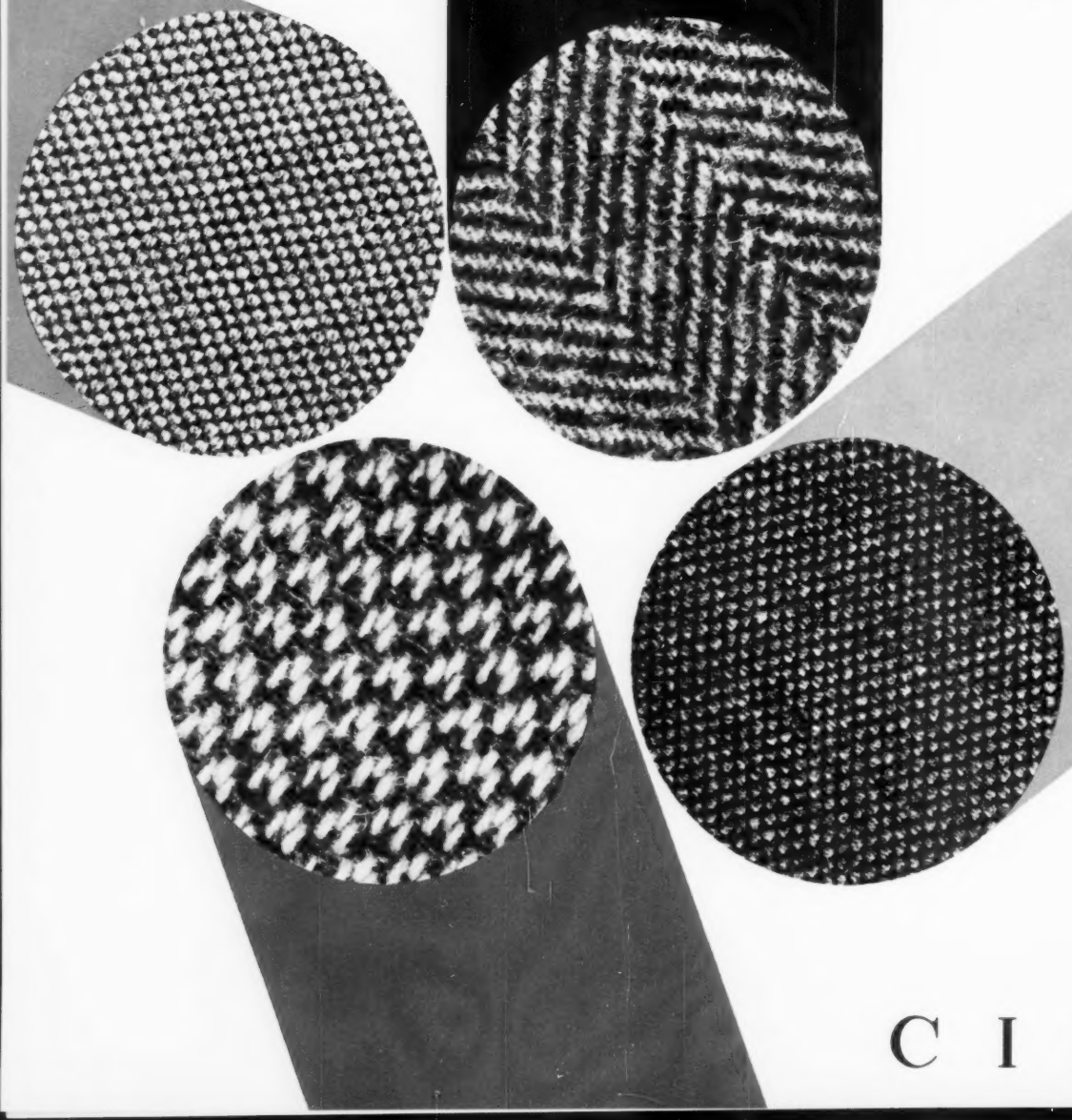
Cibalan Black BGL is the first straight black meeting all the high standards of the Cibalan group. Dyeing and fastness properties put it among the finest dyes for wool, nylon, and silk. Cibalan Black BGL gives a jet black color that changes only slightly in artificial light. Extending the color range of the Cibalan group, it makes possible new fashion shades of all-Cibalan fastness. The currently popular Charcoal Gray is dyed as a self shade

Cibalan Black BGL
a CIBA Original Product



CIBA

how to use

stretch and snag tests

Standard tests, here described, will raise quality, cut losses

By Erb N. Ditton

THE TEXTILE INDUSTRY as a whole has become acutely aware of the importance of standard test methods and statistical control in maintaining quality at each stage of manufacture through competent laboratory analyses. The hosiery industry, however, has not to the same extent availed itself of the services of the American Association of Testing Materials and other organizations to develop an adequate series of test methods for the protection of both manufacturers and customers.

Stretch and snag resistance tests are in accordance with established standards but most test methods on hosiery are those developed within individual organizations. In view of the increasing sales to chain and mail order houses on a specification basis, this lack of established standards, through no fault of the plant laboratories, often results in tests which are sometimes not only inadequate but in some cases actually may be harmful from a competitive standpoint.

We will describe briefly in this and following articles standard test methods and discuss some of the non-standard methods in an effort to bring to the hosiery industry a greater realization of the value of standard tests.

STANDARD ATMOSPHERIC CONDITIONS

Testing under standard conditions of 65% Relative Humidity at 70°F. will permit the exchange of laboratory results and will make it possible to correlate results from one yarn and construction to another. More importantly, it will make for efficient operation of the laboratory and will eliminate constant machine adjustments due to incorrect data or the faulty interpretation of data obtained under variable conditions. Imagine the difficulty in specifying a correct machine adjustment when a nylon welt has a circumference of 27.5″ under standard conditions and a circumference of 26.0″ under a Relative Humidity of 40%!

Since today most mills are air conditioned, the laboratory should be kept under the same conditions as the mill, where it is not possible to operate it under standard atmospheric conditions.

STANDARD STRETCH METHOD — ASTM D-1058

This test method describes the measuring of stretch on the scissor and pendulum types of machines and gives information as to the scope of the tests.

Accuracy of the tests is limited by variation in raw material, the attention given to quality control in the plant, the calibration of the machines and the ability of the laboratory personnel. Through use of statistical control methods, the overall effect of these factors can be calculated for each individual plant. Otherwise, it is necessary that a sufficient number of tests be made to assure the establishing of control limits. For example, test samples should be taken from several entire machines rather than from one section of several machines.

We have found that the following variations in hosiery of Type 66 nylon would be accepted as normal in a progressive mill (figures are in inches of diameter stretch—multiply by two if circumference stretch is desired):

	Plus or minus variation	
Stocking Part	*Decimal*	*Sixteenths*
Welt	.35	6
Leg	.30	5
Ankle	.25	4
Instep	.25	4
Foot	.20	3

The uses of this test are too well known to the industry to require comment, but it might be well to quote the note appended to the scope as given in the standard method if only to show what the test will not do:

> "This method does not establish any specifications and tolerances which may be desirable, but merely presents the methods by which hosiery may be tested to determine if it conforms to such specifications and tolerances when established."

METHOD OF TEST FOR SNAG RESISTANCE OF HOSIERY — ASTM D-1115

EVALUATION OF SNAG RESISTANCE OF HOSIERY — AATCC 66-54

The two test methods which are identical in content describe the snag testing of hosiery by the sandpaper method and, as presently written, are only suitable for regular and not stretch constructions. However, it is possible to test stretch hosiery by a simple modification of the test method and the necessary revisions to allow for this are now being prepared by both the ASTM and AATCC.

It is of the utmost importance that any decisions as to the relative snag resistance of various constructions or different finishes must only be made when such differences exceed the statistical limitations of the test and these are adequately described.

This test method is of value in predicting the number of snags to be expected in the handling of hosiery during normal mill operations and can serve as a guide to what may be expected in consumer handling, as, for example, in laundering. However, it cannot

(Continued on Page 46)

NEW TWISTS in stretch yarn processing

Universal provides a complete service— including special machinery, easy financing, expert technical aid and market information

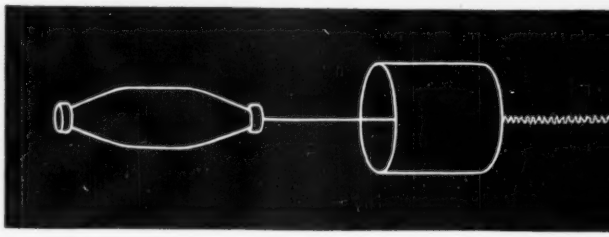
Universal has developed a comprehensive service for stretch yarn production that covers every factor from pirn to finished product. Here are the highlights:

Special Machines — In line with its long established leadership in the manufacture and development of textile machinery, Universal was first to go "all out" to meet the industry's needs for new type machines to process the new "magic" yarns. As a result of this pioneering, Universal is the recognized headquarters for machines especially developed to handle all the popular new bulk and stretch yarns. These machines have thoroughly proved themselves in production. Today they are on the job, operating smoothly and successfully.

Practical Financing — In recent years Universal's Pay-As-You-Profit Plans have been enabling mills to acquire up-to-the-minute textile machinery, without jeopardizing their cash, capital position or borrowing power. Applied to the new Universal machines for processing stretch and bulk yarn, these popular plans provide for long-term purchase or long-term lease.

Plus...

The Universal Yarn Evaluation Department — Universal realizes that its obligations do not end with supplying and financing new machinery. Equally important in the stretch yarn field is a knowledge of how to process the new yarns to obtain the fabric results desired, and how to gauge their marketing possibilities.



For this purpose the Universal Yarn Evaluation Department has been established. Important goals of the new Department include:

Setting up standards for producing and testing stretch yarns; providing samples to mills, recommending test procedures, and appraising samples submitted by mills; thorough investigations of possible trends, needs and end uses.

For further facts, see your Universal Representative or write direct.

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23.5.26

Hosiery Test Methods

(Continued from Page 43)

serve as a means of predicting wear since the occurrence of snags in wearing can be affected by too many extraneous factors, such as catching on a rough surface. In spite of this limitation, the test can be of great value in measuring the effect of various finishes on snagging. The same note already referred to under the discussion of the stretch test applies with equal force to this test.

NON-STANDARD STRETCH AND RECOVERY TEST

This test is an adaptation of the stress-strain technique used by yarn producers in controlling physical characteristics of their product. It may be used also to establish knitting specifications, which will result in more satisfactory fit and wearer comfort. Stress-strain diagrams may be obtained from tests on the pendulum, scissors and incline plane types of machines.

For hosiery, the most common and useful form of stress-strain diagram is one in which the stress in pounds is plotted against either the actual stretch or the percent stretch compared to the width of the stocking part before the test is started. When comparisons are to be made between two constructions whose unstretched widths are the same, it makes no difference which method is used. But if the starting widths are not the same—and this is the usual case when yarns with different physical characteristics are being used—then only the percent stretch may be used if a true comparison between them is to be obtained.

The standard stretch test is only of value for control purposes, but cannot supply adequate test information for constructions made of different materials or ones made under different heat setting conditions, as the stretch is only obtained under one load—generally at 10 pounds. The stress-strain relationship at lower loadings is of importance for both fit and comfort. Two constructions that may have the same stretch at 10 pounds may differ quite widely under lesser loads. Only a stress-strain diagram can, therefore, give the necessary information and this can be best shown by referring to Chart I which shows two generalized types of stress-strain curves.

If, for example, it is desired to obtain a stretch of 10 units under a load of 10 pounds—Point C on the chart—it is theoretically possible to reach this point by curves of the general type of either curve ABC or ADC. The latter type curve is satisfactory for hosiery while the former is not. The reasons for this statement can be readily seen from a study of the curves themselves. On curve ADC, 70% of the total stretch has been realized while on curve ABC only 30% of the ultimate stretch has been obtained under the same load. If two stocking welts were constructed so that one would follow each curve when tested, it would mean that the construction following curve ABC would feel tight to the wearer when first put on and would tend to develop a feeling of bagginess when worn. The construction following curve ADC would tend to feel comfortable while being put on and would not later develop the same baggy feeling. In actual practice, constructions rarely show as great a difference as has been demonstrated by the above example. Sufficiently large differences are, however, found between yarns with different physical characteristics or between constructions that have been subjected to different heat setting conditions. Thus the shape of the stress-strain curves will vary sufficiently so as to make this test method of great value.

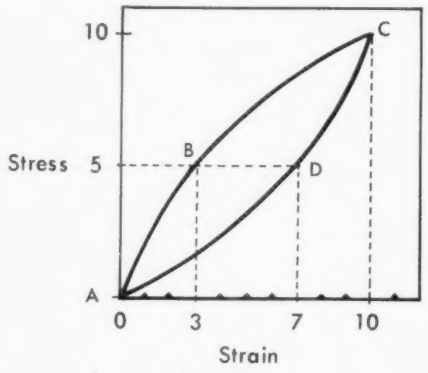


CHART I

Stress-strain tests can be made on knitted fabrics on the same testing machines used for the standard stretch test as well as on machines of the incline plane type. The test method for the latter type will first be described and this will be followed by that for either the pendulum or scissors type.

METHOD OF OBTAINING STRESS-STRAIN DIAGRAMS ON INCLINE PLANE TESTER

1. Testing machine is equipped with standard jaws as described in standard stretch test for hosiery—ASTM D-1058.
2. The stocking is laid out flat and the width of the part—usually the welt or leg—to be tested is measured. This measurement is to be considered the "original width".
3. The mid section of the test part is placed over the test jaws which have been preset to the "original width". If the jaws are not properly set, the actual stretch cannot be read from chart.
4. Tests are to be made under a load of ten pounds.
5. The controls are set to produce a repetitive hysteresis curve and the test is continued until there is no further shift in the curve.

(Continued on Page 58)

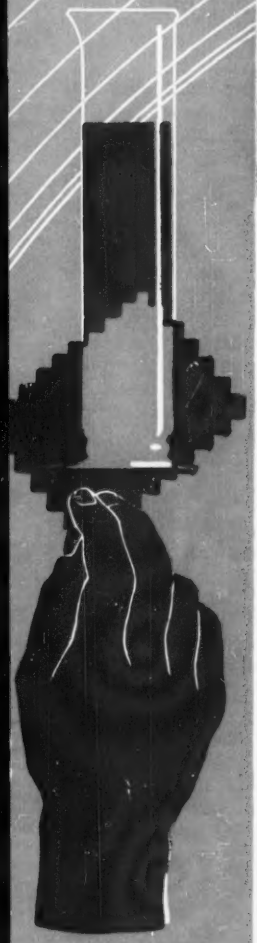
Mobile Fabrics Show

The International Rayon and Synthetic Fibres Committee, Paris, France, is sponsoring a mobile exhibition of men's wear fabrics and garments beginning Feb. 3 through July, 1956. Material and garments have been assembled from 14 countries. Almost all American fiber and yarn producers as well as a number of mills and garment manufacturers have cooperated in supplying piece goods and wearing apparel.

Wool Research Gains Expected

According to Dr. Gerald Laxer of The Wool Bureau, research projects are underway to develop: improved mothproofing processes, a finish to give permanent creases and pleats, new shrinkproofing methods, and improved dye receptivity. Dr. Laxer spoke at the recent convention of the International Association of Clothing Designers in the Netherland Plaza Hotel, Cincinnati, Ohio.

DYEING and FINISHING Section



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DYEING ARNEL TRICOT

By R. G. Stoll*

Here is a full account of dyeing methods for these fabrics based on dyehouse practices worked out by Celanese experts in recent months

AT THIS STAGE we know how to produce Arnel lingerie weight tricot in a good pure white and most pastel shades. These fabrics will wash easily by machine or hand. They will require little or no ironing especially when machine laundered and tumble dried. Arnel tricot is fast drying comparable to the drying of nylon of similar weight and construction; garments made from Arnel tricot will not shrink out of fit and will hold their shape. Last but not least, Arnel tricot has the comfortable and pleasing feel of acetate suitable for all year round wear. It doesn't feel cold or clammy even under the most adverse weather conditions.

We have established procedures for the pleating and embossing of these fabrics. The patterns and pleats are durable not only to hand washing and drip drying but even to repeated machine washing and tumble drying. We have also established practical procedures for the printing of Arnel tricot to achieve a color fastness which will prevent staining and fading under all normal wearing and service conditions.

In our own knitting plant we have processed during the last year enough yarn to be able to conclude that the mechanical processing and the knitting of Arnel tricot is very similar to the knitting of comparable denier acetate yarn. The quality of 50 and 55 den. Arnel yarns which are presently being produced for tricot applications should enable the knitter to maintain a defect count not higher than that experienced with an acetate yarn of good commercial quality.

In the dyeing and finishing of Arnel tricot, the analogy to acetate is no longer simple. Nor is it possible to adapt readily to Arnel dyeing and finishing procedures which have been developed for nylon tricot.

In order to take full advantage of the fiber properties inherent in Arnel it is required to subject the fabrics to some form of heat treatment. Most nylon and Dacron tricot fabrics customarily are heat set. Equipment and processes which have been developed for the handling of these last synthetics cannot be applied without major modification to the handling of Arnel. Arnel, unlike nylon and Dacron, does not shrink when it is heated. Instead of tightening up in the heated zone of a pin frame it sags and would drag on the lower heater or reflector. Under such conditions, the loop configuration would be distorted which would result in a fabric of uneven and undesirable appearance and inadequate dimensional stability. To dye and finish Arnel tricot using the same technique as for regular acetate tricot would produce a fabric of only slightly improved dimensional stability with little if any significant improvement of washfastness and mussing resistance.

In our attempt to adapt commercially available equipment for the heat treatment of Arnel tricot we have found that the treatment with steam under pressure gives excellent results with regard to dimensional stability, mussing resistance and general ease of care characteristics. A truly wash and wear lingerie fabric can be produced by such a procedure which consists essentially of the following steps:

Pre-setting of the fabric in an open width washer using relatively high temperature followed by cold water quenching.

Dyeing in the box using selected acetate dyestuffs and inhibitors in order to obtain good washfastness and resistance to atmospheric fading.

Drying of the fabric in a normal frame and batching it onto a core whereby the width of the fabric has to be carefully controlled.

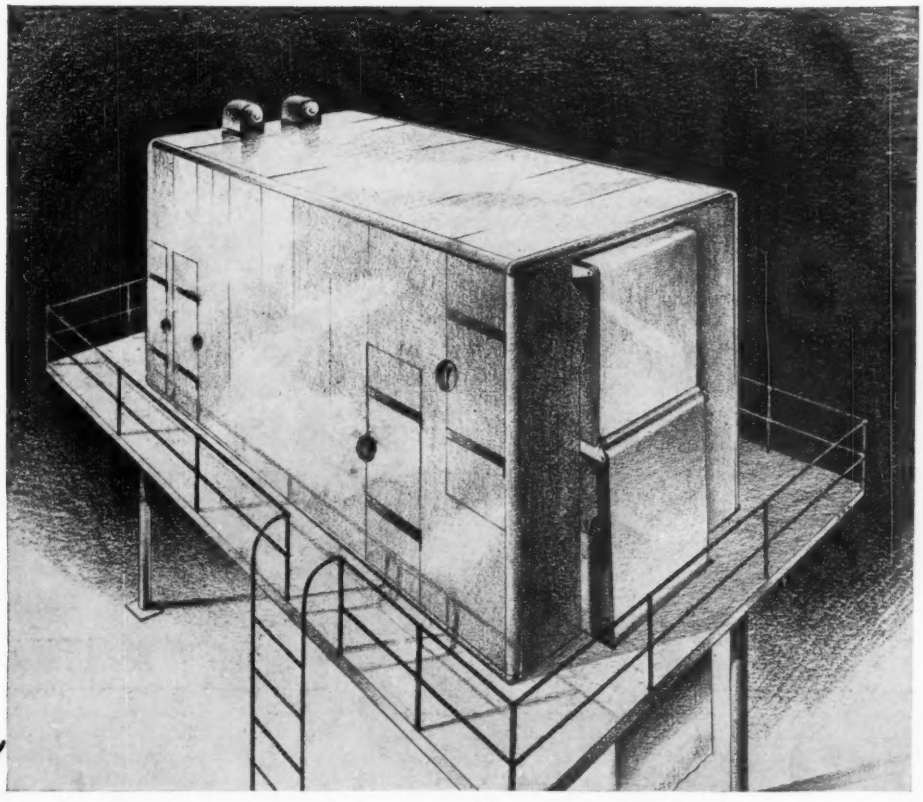
The fabric wrapped on the core is then placed in an autoclave and treated with steam at a pressure of from 25-40 pounds (267-287°F).

Although this procedure produces fabric of excellent overall performance it has some major shortcomings which make it doubtful if it will find large commercial acceptance. First of all the

(Continued on Page 50)

This pleated jersey is made of Arnel and nylon. It is said to resist wrinkles and retain its pleats, making it ideal for traveling. Fabric by Mallinson; dress by Prestonaire Fashions.

* Celanese Corp. of America.



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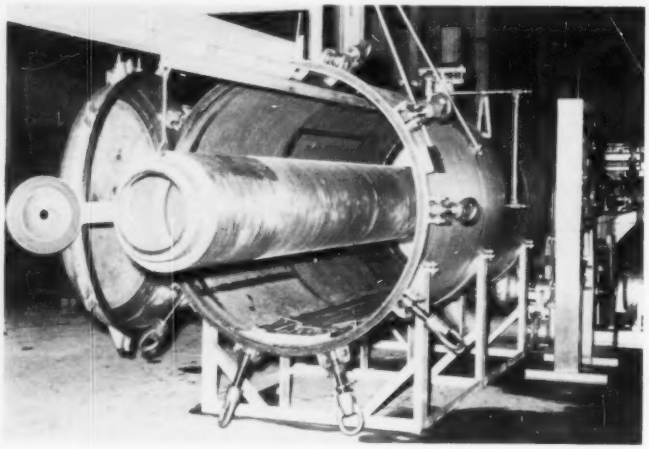
Arnel Tricot Dyeing

(Continued from Page 48)

process is quite complicated and costly. Secondly, in the case of whites the autoclave conditions have a tendency to produce yellowing, not of the fiber itself, but of the softener and residual chemicals which are on the fabric. There are also mechanical problems of handling the fabric and obtaining adequate steam penetration which cannot be minimized.

However, we have found a process which is a modification of the autoclave setting but is much less complicated and less costly. This process utilizing the pressure dyeing equipment built by the Burlington Engineering Co., provides an opportunity for dyeing, heat treating and setting of the fabric simultaneously. The grey fabrics are scoured and pre-set in the usual manner in an open width washer. The dehydrated fabrics are then framed onto the core of the Burlington pressure dyer. This is accomplished by a short frame. The width control in this processing and the uniform wrapping of the fabric onto the core is the most critical operation since it actually controls to a large extent the appearance, hand, drape, and particularly dimensional stability of the finished fabrics. It is not possible to set the fabric to any desired width, but the optimum width depends on the construction of the grey fabrics and must be determined experimentally. One cannot expect to obtain in the finished fabrics good dimensional and shape stability if the tricot is pulled out excessively, length or widthwise, during the pre-setting and setting operation. It is essential that the fabric, after it has been wrapped on the core, be properly secured by using a stainless steel mesh girdle and other possible techniques. This will be a fruitful field for the imagination of the mill men to develop gadgets suitable to control the width of the fabric on the beam during the pressure dyeing procedure.



This pressure dyer, manufactured by Burlington Engineering Corp., is cited by the author as giving good results in dyeing Arnel.

In the case of whites it is possible to heat-treat and set the fabrics in the Burlington unit by scouring at 260°F. If desirable the fabric can then be bleached after heat treatment without the necessity of rehandling the fabric or disturbing the set configuration of the loops. I would like to emphasize at this point that Arnel bleached by such a procedure will be an excellent white, and it will stay white in service.

In order to obtain good overall fastness characteristics it is essential to use selected acetate dyestuffs. The selection of these dyestuffs and the formulation of the dye bath must take into consideration the following factors:

1. Dye bath stability temperatures up to 260°F.
2. Intrinsic fastness of the dyestuffs to washing and atmospheric fading.
3. Minimum sublimation.
4. Level of exhaustion rate and pile on.

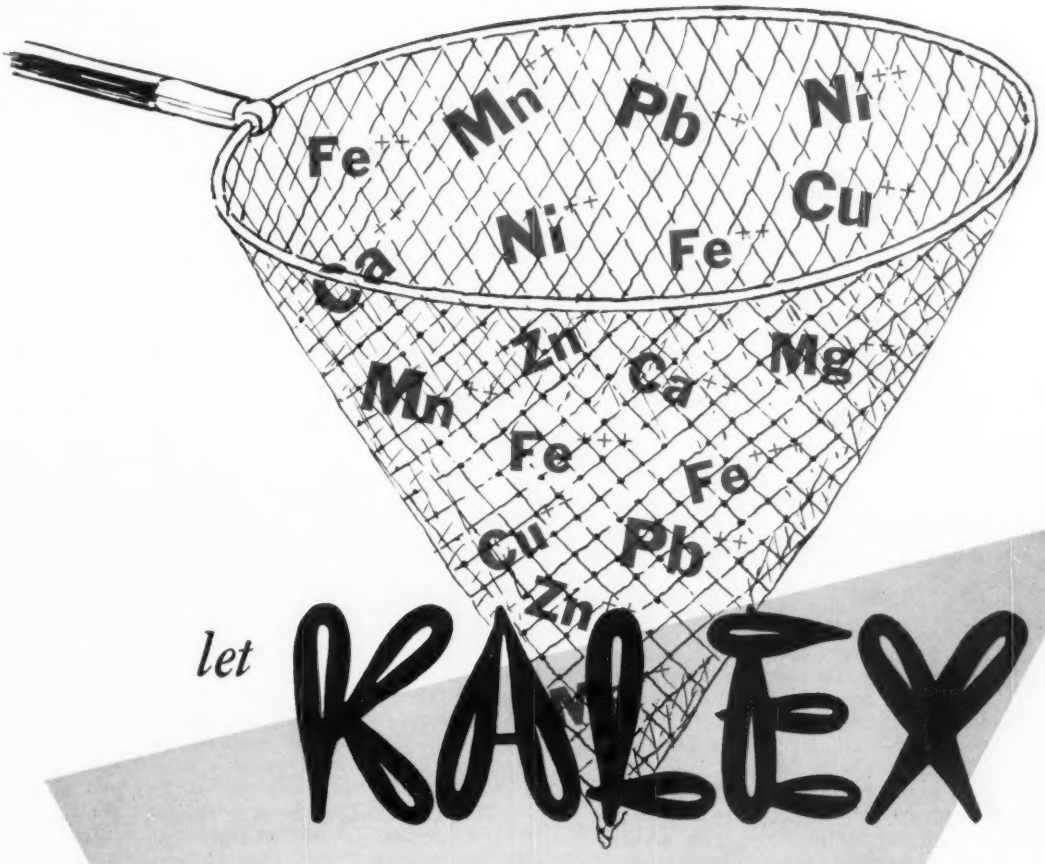
We have evaluated most of the commercially available dyestuffs and can supply recommendations to interested dyehouses as to the most suitable dyestuffs and best formulations as well as the level of performance which may be obtained. After completion of the pressure dyeing cycle and the pressure scouring followed by bleaching for the whites the fabrics are dehydrated and dried on a frame in the usual manner.

This process using the Burlington pressure dyeing unit, which our technicians worked out jointly with the Palatine Dyeing Co., has now been operated successfully for several months on a commercial scale. It is a process which is technically and economically sound. It requires training of personnel in addition to the adaptation of equipment but it should not present major difficulties to be adopted by commercial dyehouses. Our technical service organization will be glad to assist dyehouses in establishing this technique as a commercial procedure.

I would now like to mention another fabric and a procedure which, although not yet fully evaluated, may soon reach commercial significance. I am referring to combination fabrics made from Arnel and nylon or Dacron respectively. Due to the stabilizing effect of nylon and Dacron these fabrics can be heat treated on a radiant type pin frame. The presetting and dyeing procedure can be carried out in the usual manner, using an open width washer and regular winches.

The washfastness of the nylon/Arnel combination may not be up to the level of the 100% Arnel fabrics, but will be as good as most of the 100% nylon fabrics presently produced. Dacron offers an advantage in this respect since the dyestuffs which can be used for the combination will give inherently better washfastness. In addition it will be possible to heat treat the Arnel/Dacron combination at a higher temperature than the nylon combination. This further improves the washfastness on Arnel and has also a favorable effect on the wash and wear characteristics.

Another important application in which we feel that Arnel tricot will find a large market is printed fabrics. The advantage of Arnel as a print fabric stems from the inherent property of resistance to staining. Again I would like to stress the importance of using selected acetate dyestuffs and special print paste formulations which we have developed to obtain freedom from staining and color fading. ■



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New antistatic finish survives laundering

WHAT promises to be a major victory in the battle against the static nuisance in man-made fiber fabrics has been achieved by a new antistatic finish with a high degree of durability. Tradenamed "Niatex" antistatic AG-2 by its maker, Carbide and Carbon Chemicals Co., the new finish remains effective throughout "repeated launderings and dry cleanings" according to W. A. Woodcock, manager of Carbide's fine chemicals division.

Niatex is especially effective and has maximum durability in dry cleaning and laundering when used on the acrylic fibers such as Orlon, Acrilan and Dynel. It imparts effective anti-static properties to nylon, but its durability on nylon fabrics is not as great.

When used on fabrics, Niatex reduces static electricity thus reducing dirt and lint pick-up and the unwanted clinging to the body or to other garments which can be caused by static electricity in a garment. On Dynel fabrics, for example, the extent of antistatic protection achieved with Niatex AG-2 is such that the fabric shows no dirt pick-up after rubbing on wool. Also after similar rubbing, the fabric shows zero voltage and a volume resistivity less than 5×9 ohm/cm^3. Fabrics with these three characteristics are considered essentially static free, according to T. A. Feild, Jr., head of the development service laboratories of Carbide's textile fibers department.

The new finish is a viscous, white to light amber liquid. No catalyst or high-temperature curing is required in applying it to fabrics. Niatex is applied by diluting with water and padding or spraying on the cloth. It is important that it be thoroughly dried. The finish is shipped as a water solution and can be mixed with water or any of a wide variety of organic solutions and may be of use in applications employing propellants. For application during dry cleaning, an emulsion of Niatex can be made in the dry cleaning solvent itself.

Niatex is compatible with many types of resins, water repellents including silicones, stiffening agents and softeners. Mr. Feild points out that the antistatic durability of various combinations of finishing materials with Niatex AG-2 varies somewhat so tests must be made in specific cases. It is suggested therefore, that fabrics used in hazardous locations be rechecked at frequent intervals. In other words, Mr. Field says, while excellent antistatic protection can be achieved, the methods of application and the conditions under which synthetic fabric clothing is used and laundered vary widely. Therefore a history must be built up in order to be sure clothing retains an adequate degree of antistatic protection.

According to Mr. Feild, the new finish is most effective on fibers with irregular cross sections. Thus it is difficult to remove from Dynel except in hot alkaline solutions. On Saran, it withstands surprisingly long abrasion tests, but will not withstand scouring. It is effective on Orlon, and is being used on Dacron tricot primarily to improve the fabric hand.

Mr. Feild stressed that Niatex AG-2 is durable in launderings both with soaps and synthetic detergents. He also pointed out that fabrics treated with this finish, which have been stored for three months, have exhibited no less of their static protection. Laboratory tests have shown that Niatex AG-2 finishes are extremely resistant to abrasion.

Physical Properties of Niatex AG-2

Active Ingredient, % by wt.	20
Color	Light Amber
Odor	None
Specific Gravity 20/20°C	1.043
pH	4.5-6.0
Viscosity, 100°F, c/s	150-200
Solidification Temperature	24°F
Weight per gallon at 20°C	8.68

Rayon on Beams

(Continued from Page 33)

ence in bore sizes of these two spools. The 14″ x 42″ spool has a bore diameter of 2¾″ and the 21″ x 42″ spool is 4½″ in bore diameter.

A new and larger tricot-type metal spool recently was introduced by American Viscose Corp. This spool measures 32″ x 42″ overall and has a capacity for more than 900 lbs. of filament rayon yarn. The compactness of this supply package effects an approximate 27% saving in cubic volume over coned yarn, resulting in a substantial saving both in shipping and in storing. When this spool is used as a section beam, as already illustrated with the smaller tricot spools, it is necessary to use a shaft of at least 1⅝″ diameter to support the weight.

Versatility of Tricot Spools

With rayon being supplied in the conventional-size warp spools and on the large spool, it can be seen that there is now available in a 40″ width a wide range of possible constructions. These packages are being supplied in appropriate sizes to weavers and to other textile operations requiring widths narrower than sections beams. Tricot spools, therefore, are proving to be at least as versatile as section beams if not more so.

The advantages to the textile mill operator of using beams or spools supplied by the yarn producer may be summed up as follows: the saving of the warping operation and all its attendant headaches and problems; savings in storage and operations space; less yarn waste; savings in equipment and maintenance as well as labor and supervision. Last, but not least, use of beams or spools improves fabric quality.

You Have 3 Big Advantages

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Lasting Crush Resistance and
Dimensional Stability
Higher Breaking Strength and
Abrasion Resistance

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(U. S. Patent Nos. 2,516,632; 2,516,633; 2,516,634)

This valuable brochure is available upon request. Send for your copy now.

Enka's New "TEXTURIZING" Method

What it is

How it works

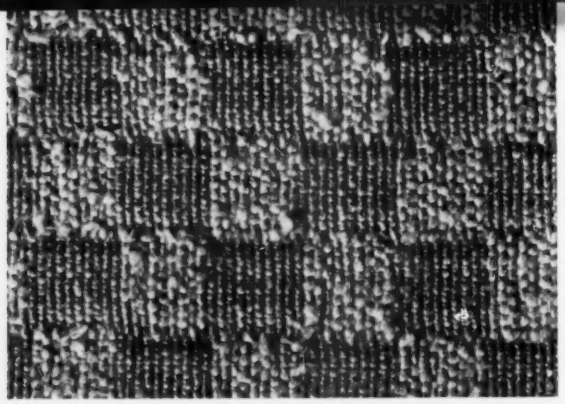
A NEW AND DIFFERENT device has been developed by American Enka Corporation for "texturizing" or bulking all types of man-made filament yarn, producing weaveable and knittable yarns of exceptional bulk regularity. The device is easily attached to any winding, uptwisting or redrawing equipment using a constant speed take-up. The bulking device is small and compact and is equipped with adjustable positive controls for setting the degree of bulk desired. The method offers bulk regularity which can be controlled from package-to-package as well as within each individual package.

According to Enka, a combination of adjustments and the type of yarn used determines the bulk characteristics, thus making it possible to produce loops ranging in size from very fine to very large. The determination of the loop size is, of course, dependent upon the fabric characteristics desired.

It has been demonstrated that a wide variety of effects can easily be obtained through varying the loop size, or even minor changes in fabric constructions such as the lowering or raising of the number of picks per inch where bulked yarn is used only in filling.

The bulking of man-made filament yarns offers important possibilities in the development of new fabric ideas, particularly in the apparel and home furnishings fields. It opens a wide range of new properties, including a new fabric body, new textures and hand. Also, texturizing offers high coverage, permitting, in some cases, lower fabric construction, greater resistance to fuzzing and pilling, subdued luster and a crisper, more resilient hand, it is pointed out by Enka engineers.

The filament denier of the yarn plays an important role in affecting the character of the final product.



Among the first fabrics made with yarns bulked by American Enka's new process was this upholstery cloth woven by Isabel Scott Fabrics Corp., using Enka solution-dyed filament rayon combined with raw silk. Although produced on a power loom, the cloth has a hand-loomed appearance.

Experience shows that a low denier per filament, such as 1.5 denier per filament or even 1 denier per filament, produces generally more desirable characteristics than coarser yarns. This is particularly true in lower denier yarns from 30 denier to 150 denier.

The tenacity of filament yarn is reduced somewhat by texturizing, although not to such an extent as to impair the processing of the yarn or the performance of the fabric. The amount of loss in strength depends largely on the degree of bulkiness given the yarn. Generally speaking, the strength of bulked filament yarns is usually higher than spun yarns made from staple of the same fiber and yarn size.

Under Enka's process, yarns must contain some twist in order to be bulked properly. The amount of twist depends upon the filament denier, yarn denier, and the type of yarn to be bulked. In any case, however, the amount of twist required is nominal. Within a given twist range, it is possible to produce textured yarns exhibiting subtle differences in fabric hand and character with the Enka device.

Because of low initial costs and flexibility of the Enka texturizing assembly, this process is expected to be of particular interest to throwsters, weavers, and knitters. Enka has instituted a licensing program with licensing agreements being made available on a 1% royalty rate based on the price of the material to be bulked. Licensees will be permitted use of the equipment and given technical assistance for a nominal royalty of 1% during the period before a patent is issued to Enka (or before January 1, 1958, if this date occurs first). After a patent issues, a royalty rate will be determined by the then existing conditions, but will in no case exceed 5%.

Textile Men at PTI Ceremony

A new residence hall was dedicated on Feb. 3 at Philadelphia Textile Institute. During an Academic Convocation held at the Germantown Cricket Club as part of the ceremonies, honorary degress of Doctor of Textiles were awarded to Robert L. Huffines, Amerotron Corp., and Rinaldo A. Lukens, Continental Mills, Inc. Shown here is Theodore B. Hayward, vice president of the Institute Foundation and chairman of PTI's building committee, cutting a ribbon to open the new residence hall which is located on the college campus. Those shown are left to right: B. W. Hayward, president of PTI; W. Lyle Holmes, Archibold Holmes & Sons; Dr. Lukens; Theodore B. Hayward; Robert Smith, American Viscose Corp.; Harry Dalton, American Viscose Corp., Dr. Huffines; Dr. Richard S. Cox, Dean Emeritus of the Institute; Dr. Frederic Barth, Industrial Rubber Co.; William A. Popp, William A. Popp & Associates; Leon P. Brick, Onyx Oil & Chemical Co.; Wayne Fry, Albany Felt Co.

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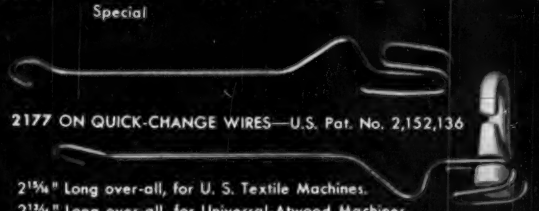
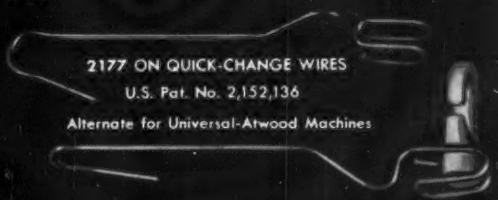
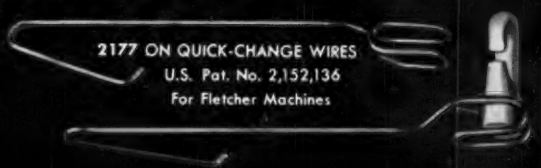


2177 ON QUICK-CHANGE WIRES—U.S. Pat. No. 2,152,136

2 15/16" Long over-all, for U. S. Textile Machines.
2 13/16" Long over-all, for Universal-Atwood Machines.



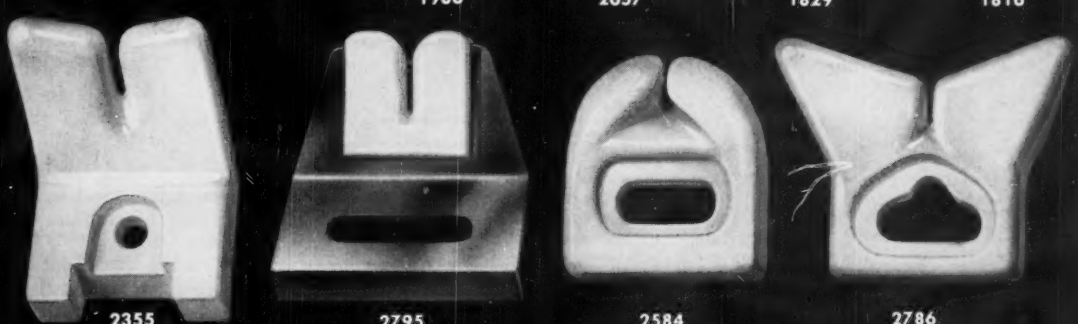
2177 ON QUICK-CHANGE WIRES
U.S. Pat. No. 2,152,136
Alternate for Universal-Atwood Machines



2177 ON QUICK-CHANGE WIRES
U.S. Pat. No. 2,152,136
For Fletcher Machines

1935 | 2304 | 2089

2264 | 1986 | 2657 | 1829 | 1816



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Southern Representative: R. E. L. Holt, Jr. & Associates, Greensboro, N. C.

Engineering

Machinery makers push mill modernizing

WHEN PURCHASING new machinery, textile manufacturers are swinging over to a new yardstick—reduction of costs and improvement of quality rather than the old standard of return on investment. This statement was made by president W. Frank Lowell at the annual meeting of the American Textile Machinery Association in Boston last month. Mr. Lowell is senior vice president of Saco-Lowell Shops.

The Association, Mr. Lowell said, has been active in winning over textile manufacturers to this new point of view. This work has been carried on by cost reduction surveys and papers presented before technical and management groups in textiles. These programs were arranged by the Association's office and were participated in by experts from both the research and sales divisions of the machinery manufacturers. The programs helped keep millmen informed on new textile technological developments that will bring them economic benefit, Mr. Lowell declared. The Textile Machinery Manufacturers Association has as members 90% of the metal working companies who make capital equipment for textile mills.

Mr. Lowell also reported that the Association had made progress during 1955 in government relations. "One gain along this line," Mr. Lowell noted, "is the adoption by some government officials of the business man's philosophy of productivity and efficiency of operation of textile machinery, rather than initial cost, as a trading policy in offshore procurement programs. This is the only realistic approach in purchases of capital equipment no matter where or for what country it is bought."

President Lowell told the machine builders that among the outstandingly constructive activities of the Association are those concerned with textile education. He said the need for highly trained textile graduates was more acute than ever in the face of the many technological and economic changes brought about through the use of modern machinery. He cited the cooperation between the Association and the National Council of Textile Education as a means of meeting this problem. And he gave as one example of gaining better understanding between machine builders and textile educators the inauguration of Textile Education and Machinery Day by North Carolina State College, School of Textiles last February when the textile machinery group were given a day at the school and a citation for industry leadership. The event will be repeated on May 10 of this year at Lowell Technological Institute, Lowell, Mass.

Mr. Lowell also said that the reports received by the Association indicated that the annual meeting of the National Council for Textile Education, which was sponsored by the Association last October in New England, had been a great success. "For the first time," he said, "machine builders, leaders of our customer industry, and a full roster of the nation's textile school deans discussed in joint session the manpower and technological needs of the textile mills and sought solution to this problem."

President Lowell, summing up the year-end business review of the textile machinery industry based on an Association survey of member firms said that general conditions have improved. Many firms entered the new year with better backlogs of orders than in several years. Textile machinery manufacturers will be able to take care of any foreseeable demand that may come from textile mill expansion or modernization programs, Mr. Lowell said.

Other officers re-elected were James H. Hunter, James Hunter Machine Co., as vice president; Gorham Brigham, Saco-Lowell Shops, as assistant to the president; Samuel F. Rockwell, Davis & Furber Machine Co., as treasurer. Two new directors were named to the board: P. Kay Schwartz, Proctor & Schwartz, Inc.; and Myron S. Curtis, The Warner & Swasey Co. Other board members re-elected (in addition to Messrs. Lowell, Hunter and Rockwell) are: Roy G. Ross, Barber-Colman Co.; J. Ebert Butterworth, H. W. Butterworth & Sons Co.; Frederic W. Howe, Jr., Crompton & Knowles Loom Works; Thomas H. West, President Draper Corp.; Robert Leeson, Universal Winding Co.; and J. Hugh Bolton, Whitin Machine Works.

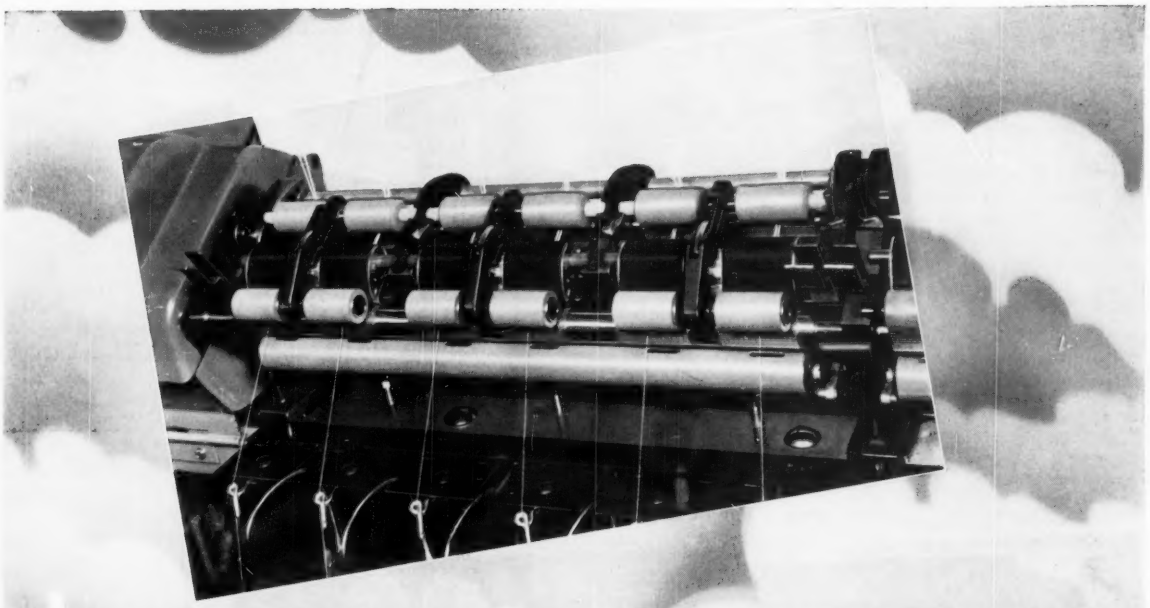
Outlook

(Continued from Page 30)

to build up their formerly profitable women's suit departments can be expected to increase their fall purchases of wool garments if sales of spring lines are as favorable as they seem to expect.

3. Cotton continues to enlarge its conquests in both woven and knitted fabrics. Gains in both cases are due partially to technical developments, and partially to style influences. Improved finishes have given cotton woven fabrics a silky look, which is in demand in many lingerie as well as outerwear items, and which has made these garments easier to care for. Improved finishes have also imparted satisfactory stability to cotton knit garments, and the fashion importance of such fabrics for spring has increased—cotton knit fabrics are being used in spring toppers, and cotton fabrics woven to resemble knit fabrics are seen in full length coats.

It is to the credit of the merchandising programs instituted by many fiber producers that they recognize the popularity of these natural fibers, and seek to turn it to the advantage of man-made fibers. Some of the blends that will receive extensive promotion by these producers contain natural as well as man-made fibers. And, since successful high style fabrics frequently generate volume demand a season or two later, many of these blends are constructed so that they can be imitated at a reduced cost but still with good serviceability for the consumer, in similar blends in which more expensive fibers such as silk and wool have been replaced by rayon or acetate.



1,250,000 SPINDLES OF SACO-LOWELL DUO-ROTH —BOTH STANDARD AND STAY-CLEAN*— *are now in operation producing higher quality, stronger, more even yarn in over 280 mills.*

1. The long, thin, flexible bottom apron passes the nose of the apron bar with a small radius of curvature in a manner which allows a close setting between the nip of the aprons and nip of the front roll, a condition necessary for the most efficient fibre control in the final drafting zone.

2. Without exception, mills using the Duo-Roth System have increased their drafts as much as 50 to 100 per cent, and at the same time have produced a yarn of greater strength and evenness.

3. The greater strength and evenness is vividly shown in a Duo-Roth installation producing 21's yarn from .75 hank single roving, employing a 4.52 twist multiple — the break factor secured is 2339. Previously, the same frames running regular drafting were producing 21's yarn from 1.50 hank single. With same twist multiple highest break factor obtainable was 2104.

4. Duo-Roth is cleaner; there is a reduction in clearer waste as the shorter fibres are efficiently controlled. After raising the draft from 19 on Roth to 33 on the Duo-Roth, one mill was able to extend the top roll cleaning period from 24 hours to 48 hours, on a three-shift basis. Another mill, with a 50 per cent increase in draft after changing to Duo-Roth, also extended the top roll cleaning period from 24 hours to 48 hours.

5. Duo-Roth was engineered to be a simple, quickly applied change-over to existing Roth installations. Mills having Roth frames in good condition will find that Duo-Roth will pay for itself in savings resulting from increased draft, reduced cleaning, improved operating conditions and smoother, stronger yarns.

6. Duo-Roth is the only double-apron drafting system which does not develop wear of the cage against the apron driving roll. The standard Duo-Roth middle top roll, driving the apron, is built with a stationary arbor. The cage rests against the stationary arbor, eliminating the possibility of cage wear — a common problem with other systems.

7. The knurled and polished surface of the Saco-Lowell Duo-Roth middle top roll creates a positive and uniform drive for the aprons. Since both of the driving bosses are tied together, there is no variation in the speed of the top roll aprons regardless of the bulk of the strand being drafted. There is no slip or hesitation to create unfavorable conditions in the principal drafting zone.

8. The Duo-Roth, with the adjustable cage is extremely flexible. The correct pressure to establish the necessary degree of fibre control for the most efficient drafting can be quickly attained through easy adjustments.

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*Trademark

Hosiery Tests

(Continued from Page 46)

6. Stocking is removed from jaws immediately after completion of the test and the flat measurement of the test part is obtained. This is called "width immediately after test".

7. Stocking is then let hang freely for 24 hours and the width of the test part again measured. This is called "width after 24 hours".

8. Stretch is read from chart under loads of 2, 4, 6, 8 and 10 pounds and the percent stretch calculated for each of the above loads. The percent stretch is calculated by the following formula:

$$\% \text{ stretch} = \frac{\text{stretch under load—original width}}{\text{original width}} \times 100$$

These readings and calculations should be made on the loading cycle of both the first and final hysteresis curves.

9. The information obtained may either be reported in tabular form or charted as desired.

It is well known that textile yarns, subjected to repetitive loads below their elastic limit, start by yielding somewhat as the test continues, but only up to a point that is characteristic of the individual yarn. On further loading of the same amount no further yielding takes place.

This property of yarns is of great importance in hosiery as this condition of repetitive loading is the normal one in wear—for example it exists every time the knee is bent. In the case of a stocking made from a low yield yarn (as the term yield is used in this article) the standard stretch test will give adequate information since little increase in stretch will occur during wearing. However, if the yield is great, the stocking will become so loose during wear as to become completely unsatisfactory to the wearer. This condition is not shown nor can it be predicted from the standard stretch test. The fact of the yielding and its amount can be obtained from the stretch and recovery hysteresis curve. It is shown for any given load by the stretch values of the loading cycle of the first and final hysteresis curves.

It should be obvious that in order to determine whether or not a given yarn is suitable for hosiery manufacture the amount of yield must be known. If the yield is not too different from that of a yarn that is known to be satisfactory, correction can be made by reducing the original stretch—that is by knitting tighter or over a lesser number of needles. If the yield is so great that to do this would make the stocking too tight when it is first put on, the yarn would have to be rejected as a hosiery yarn unless, of course, an emergency existed as was the case during the war.

Another type of information can be obtained from the stretch and recovery test. On occasion stockings are returned to the mill as defective because they were either too tight or too loose when worn. It is frequently a mill practice to submit such returns to the standard stretch test to see if the complaint is due to the stocking not having been within the prescribed quality control tolerances. Since it has been shown that the stretch after wearing is greater than that before wear due to the above yield phenomena, it follows that different standards must be used for testing worn hosiery. It has been found that the allowance for wear should be ½ inch for welts and legs and ¼ inch for the narrower parts of stockings made from Type 66 nylon. These figures are for circumference of stretch and must be halved if stretch diameter is used. These allowances were originally obtained from the differences found on stretch and recovery tests between the ten pound stretch of the first and final hysteresis curves. The results were later compared with increases in stretch found after wearing and were found to check.

Thus, if control limits for the welts of a given construction had been set at from 26.8 to 28.2 inches for circumference of stretch, the control limits after wearing would have to be increased by ½ inch to become from 27.3 to 28.7 inches. Therefore, if a stocking were tested after wearing and was found to have a stretch of 27.0 inches, it would necessarily mean that it had been outside the "before wearing control limits".

The following data from a stretch and recovery test on the legs of stockings made from 30 denier Types 6 and 66 nylon is given as an example of information obtainable from this test.*

Table I shows the actual data from the test and Chart II the curves obtained by plotting the percent

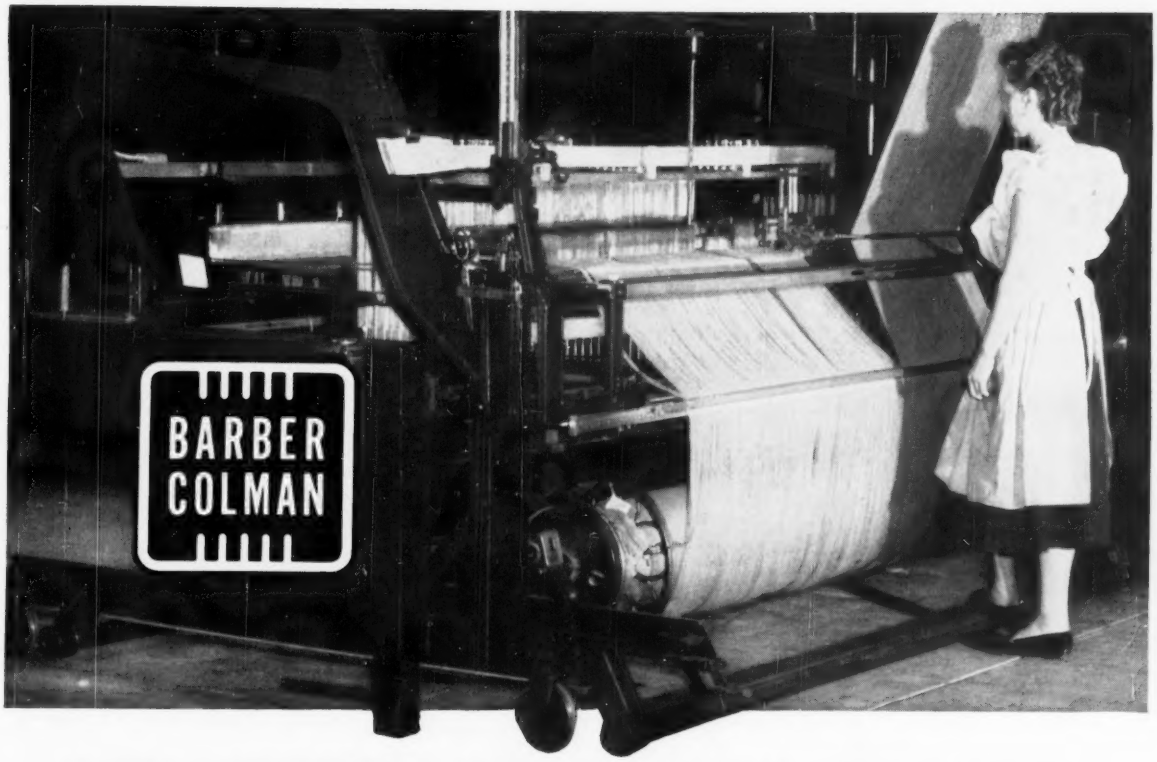
* Nothing in this discussion should be taken as an expression of opinion as to the relative merits of Types 6 and 66 nylon when used in hosiery, but merely as an indicative example of the kind of information that can be obtained from the stretch and recovery test.

(Continued on Page 60)

TABLE NO. I

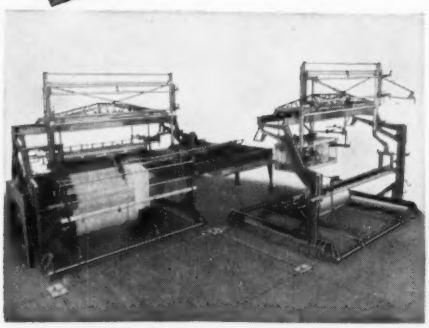
	Start of First Hysteresis Curve				Start of Final Hysteresis Curve			
Pounds	Stretch		Percent Stretch		Stretch		Percent Stretch	
Type	6	66	6	66	6	66	6	66
2	8.74	8.51	55.2	48.0	12.03	11.23	122.1	95.4
4	10.15	9.68	87.4	58.4	12.20	11.41	125.2	98.4
6	10.94	10.33	102.0	79.7	12.29	11.50	126.9	100.0
8	11.44	10.74	113.8	86.8	12.35	11.53	128.0	100.6
10	11.79	11.04	117.7	92.0	12.39	11.58	128.7	101.3

	Stretch		Percent Stretch	
	6	66	6	66
Original Width	5.42	5.75		
Width after Final Hysteresis	10.57	9.75	95.1	69.6
Width after standing for twenty four hours	6.00	6.00	10.8	4.3



WARP DRAWING MACHINE DRAWS DROP WIRES, HEDDLES, AND REED IN ONE OPERATION

Write for new
USERS LIST



On a Barber-Colman Warp Drawing Machine, at each stroke of the needle a thread is drawn through the correct selection of drop wire, heddle, and reed dent. This correct selection is made accurately and automatically for each pick by a sequence of mechanical motions controlled by a pattern strip punched in accordance with the designer's draft. Users of the machine are enthusiastic, saying such things as "pays for itself in two years", "gets samples on the loom quickly", "high sley satin warps drawn in 5½ hours instead of 48 hours", "makes style changes rapidly", "saving more than $22 per warp", and the like. Let your Barber-Colman representative look into *your* situation — perhaps he can suggest an installation that could increase production, improve the products, and lower costs.

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Hosiery Tests

(Continued from Page 58)

stretch against the load applied for the loading cycle of the first hysteresis curve. In this case, it was necessary to use the percent stretch rather than the actual stretch because the "original widths" of the stockings made from the two types of nylon were different. The fact that these widths were not the same is due not only to the yarns having different physical characteristics, but also to differences in shrinkage in heat setting (preboarding) although the knitting widths were the same and the heat setting of both was done on the same forms and under the same conditions of time and temperature.

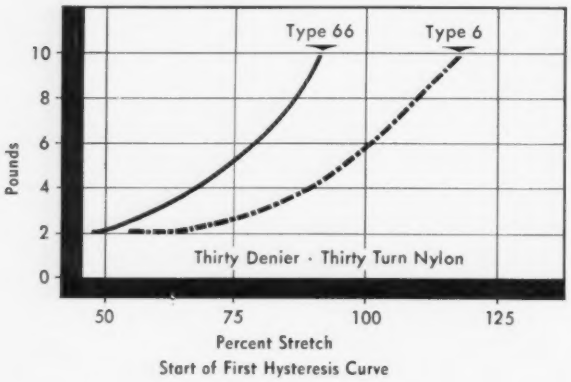


CHART II

A study of this test data shows that stockings made from these two yarns differ considerably in their stress-strain relationships. If stockings made from Type 66 nylon are taken as the standard it will be necessary to make definite changes in knitting specifications in order to make an equally satisfactory product of the Type 6 yarn.

1. The stretch (diameter) at 10 pounds on the final hysteresis cycle is .81 inches greater for type 6 than for type 66; this is too great a difference and corrections must be made. Note the wide difference between this result and the plus or minus limits of .35 inches previously recommended as quality control limits.

2. As shown by Chart II, the Type 6 yarn has not only a greater stretch at 10 pounds, but this condition also applies throughout the entire range so that stockings made from this yarn would tend to have a loose or baggy feeling when worn unless specification changes were made.

3. Note also the difference in percent stretch between the two types of nylon after allowing the stockings to stand for 24 hours. In this case the difference is not significant, but it might well have been if some other yarn had been tested.

4. The increase in stretch to be expected after wearing due to the yield characteristics of the yarns is shown to be ½ inch for Type 66, as previously mentioned, and to be somewhat greater for Type 6. This factor would have to be considered in setting up control limits for the latter yarn.

METHOD OF MAKING STRETCH AND RECOVERY TEST ON PENDULUM AND SCISSOR TYPE TESTING MACHINES.

1. Testing Machine is equipped with standard jaws as described in Standard Test for Hosiery—ASTM D-1058.

2. The stocking is laid out flat and the width of the part to be tested—usually the welt or leg—is measured. This measurement is to be considered the original width.

3. The mid-section of the test part is placed over the test jaws:

a—Pendulum Tester—The machine is started and stopped when the load reaches 2 pounds at which point the stretch is determined by measuring the distance between the jaws to the nearest ⅛".

b—Scissor Tester—A load of 2 pounds is applied and the stretch measured as in a.

4. The above procedure is repeated for loads of 4, 6, 8, and 10 pounds.

5. After the initial 10 pound load has been applied, the machine is oscillated between 0 and 10 pounds until no further increase in stretch is obtained. A total of 10 repetitive 10 pound loadings is usually sufficient for this purpose.

6. Stocking is removed from jaws immediately after completion of the test and the flat measurement of the test part is obtained. This is called: "width immediately after test".

7. Stocking is then let hang freely for twenty four hours and the width of the test part is again measured. This is called: "width after twenty four hours".

8. The percent stretch is calculated by the following formula:

$$\% \text{ Stretch} = \frac{\text{Stretch under Load—Original Width} \times 100}{\text{Original Width}}$$

9. Stress-strain diagram is obtained by plotting the load against either the actual or the percent stretch. If the original widths differ, the latter must be used.

An example of the information that can be obtained from a Stretch and Recovery Test made by the above method is shown in the data given in Table II. The test from which this data was obtained was made on rayon yarn and when compared with the results of the test on nylon shown in Table I are of interest in demonstrating the markedly different stress-strain values between a yarn of high elasticity and one of high elongation.

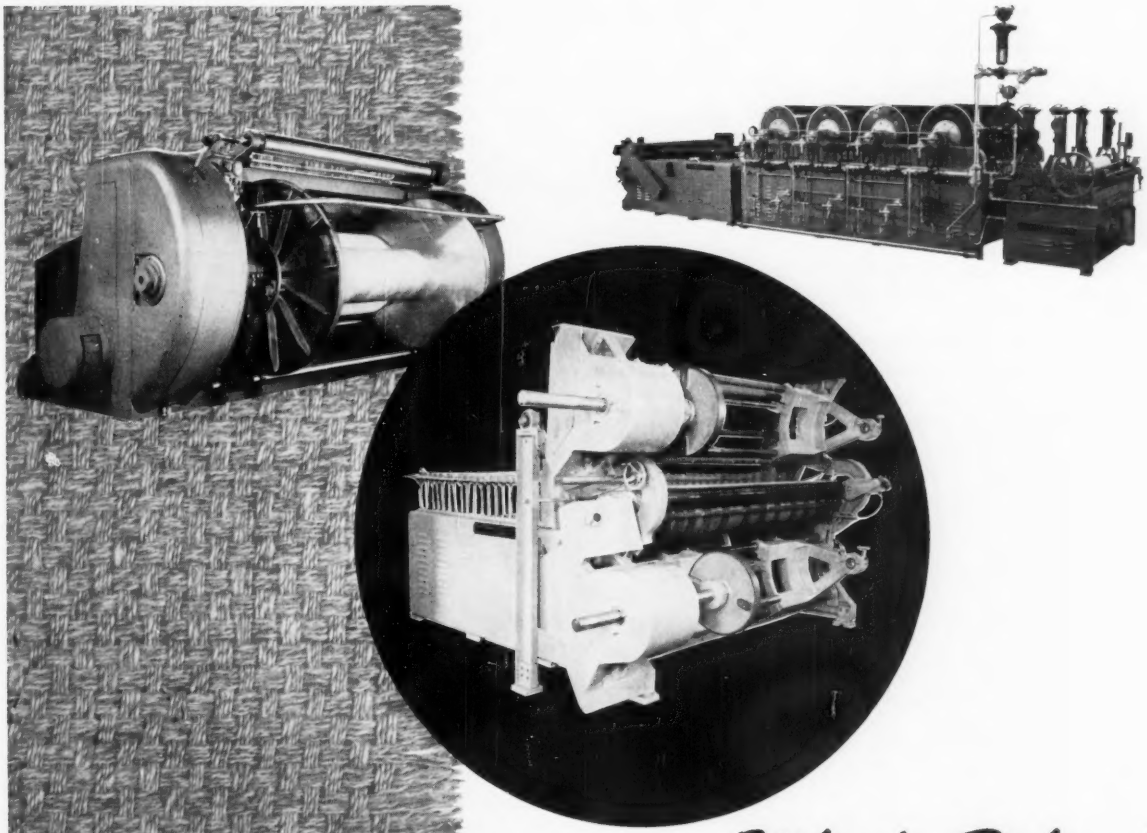
The test was made on the legs of stockings made from 100 denier rayon knit on a 45 gauge machine and the object was to investigate the influence of knitting tension (courses per inch) on the stress-strain relationships. In order to accomplish this purpose, stockings were knit at 34, 38 and 42 courses per inch.

	Percent Stretch		
Courses Per Inch	42	38	34
Pounds Load— 2	67.3	70.4	77.7
— 4	78.8	83.3	88.8
— 6	86.5	90.7	94.6
— 8	92.3	96.3	100.0
—10—First Loading	98.1	101.9	105.6
—Tenth Loading	150.0	142.6	146.3
—After Twenty-four Hours	26.9	14.8	18.5

100 Denier Rayon
Table II

A study of the data shows that on the original ap-

(Continued on Page 78)



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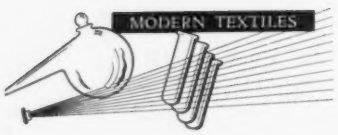

Report from EUROPE

BY A SPECIAL CORRESPONDENT

Government Assist in Belgium—*PARIS*—Belgian textile manufacturers, like most of their European counterparts, have had a hard row to hoe during the past year or so even though operations are generally running at, or near, capacity levels. Fabelta, Belgium's big rayon company, has had, perhaps, the best record to date. But even this concern, during the 1954-55 financial year which saw 8,500 metric tons of filament yarn turned out and a record 2,000 tons of staple, registered an after-taxes loss of nearly 28.5 million francs.

Reasons for such profitless operations, in Belgium and elsewhere in Europe, are generally laid to rising costs of materials, equipment and labor. An even more important reason is a market that has been shrinking relatively as European output capacity has increased. The Belgians, with a well-timed government assist, have now taken a hand to help their hard-pressed mill-men. And, when low-tariff, relatively free-trading Belgium decides to move into the textile picture, it's a safe bet that other nations, many without Belgium's liberal trade traditions, will not be far behind.

On Both Export, Import Fronts—Belgium has decided to help its manufacturers to export and also to help them in two ways on the import front. But first as to exports: a 25-million franc subsidy is to be accorded the rayon industry with the aim of reducing by 7% rayon prices sold domestically to weavers.

This move was made specifically to allow Belgian rayon weavers to procure staple and filament yarn low enough to compete with Holland. The Belgian Senate has approved subsidy payments of 5 million francs to be paid before the end of the year. Economic Affairs Minister Jean Rey, declaring that the subsidy would not be renewed, emphasized that it was being given so that the industry would have time to adjust itself for the subsidy-less days to come. Incidentally, the Belgian flax trade was also helped, largely through reduction of taxes. The government will also pay 2 francs per kilo for imported wool and eliminate a small tax on wool processed into cloth domestically.

Two-Way Import Help— The government is planning to levy a special tax on textiles imported from nations which, themselves, subsidize exports—also a "temporary" measure until the industry has had time to get back on its collective feet. The tax is not to go on imported raw materials, only on semi-finished and finished goods. This move is said to be a slap in the direction of France, which maintains elaborate export subsidy procedures. And, at the recent inauguration of Fabelta's brand-new nylon spinning plant at Zwijnaarde, the firm was "promised" by government officials that a 3 per cent tax on imports of polymer would be abolished. The polymer comes from France.

France Also Active Aiding Exports—Pending even greater assistance than is now being accorded via tax rebates and exchange control mechanisms, France lately decided to take a hand to help its cotton textile manufacturers export to Australia. Some 50 firms, in conjunction with the government-supported Foreign Commerce Insurance Corp., will have a portion of their sales promotion costs paid for six to eight years. Rebating for losses, following a three-year trial period, will also be possible. The trade has been informed that, if successful, this system may be expanded to other countries and, perhaps, to other products.

Suggested Help for France—Roger Catin, director general of France's "Union des Industries Textiles," recently made five suggestions by which the government could help the hard-pressed trade. The recommendations relied heavily on import protection and additional indirect export help. The five suggestions were: (1) no more import liberalization as long as world competitive conditions are stiff (2) Some guarantee that France should keep her overseas' markets (3) Duty-free imports of textile machinery (4) Protection against firms which pay wages below agreed levels (5) A reduction in the tax on added value.

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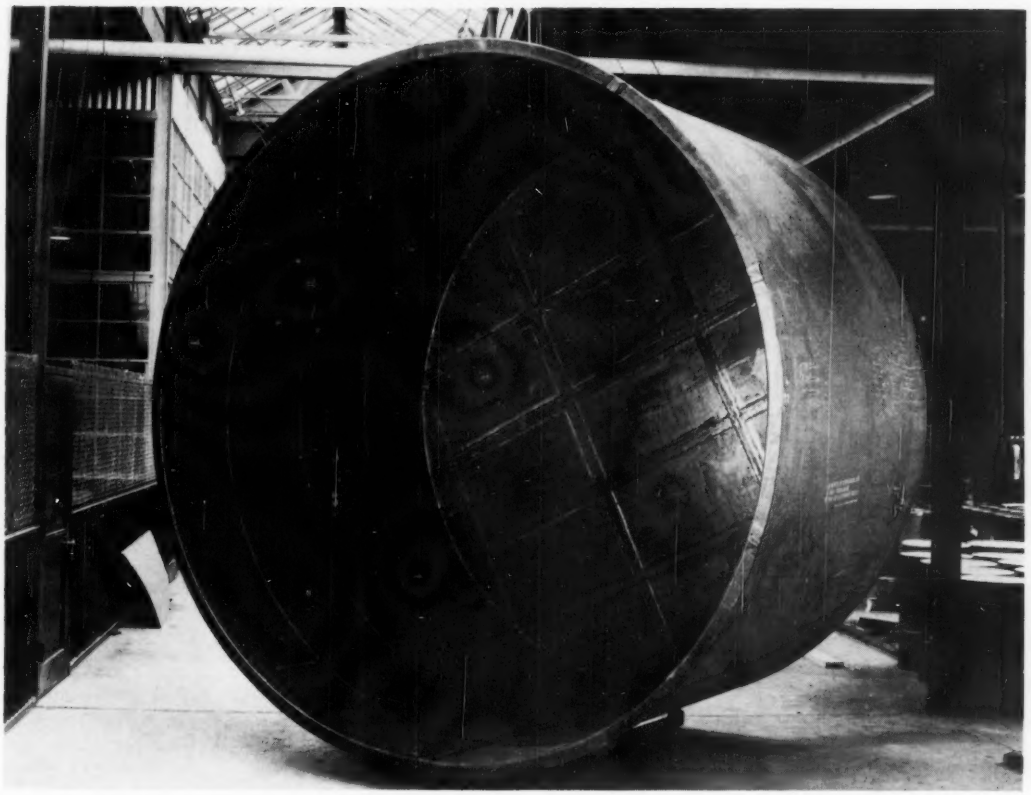

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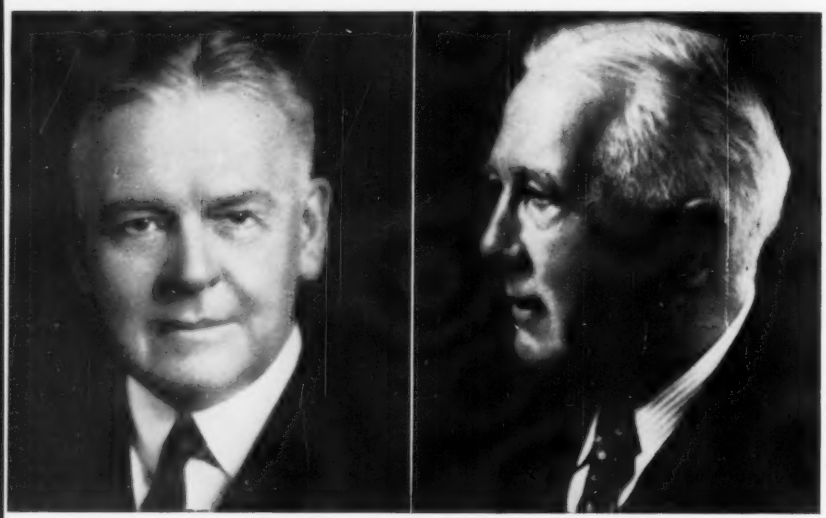
Branch Office: 327 South LaSalle Street, Chicago, Illinois

Robert S. Kilborne

(Continued from Page 32)

City and Joseph supervised the mill in Holyoke. Both men were worthy sons of their father. William had been so attracted by the family business that he had abandoned Yale in his sophomore year—thus establishing a precedent for his then unborn nephew to follow—and took a job with his father's New York sales agent. He soon was able to convince his father that the agent was not doing as good a job as he might with the Skinner line. Impressed by the acumen of his son, the elder Skinner fired the agent and put William in charge of sales. In the years that followed William, Jr., proved that his father's decision had been a wise one. His energy and ability were to a large extent responsible for the growth of Skinner in the years leading up to the old man's death.

Brother Joseph proved himself an equally redoubtable chip off the old block. After graduation from Sheffield Scientific School in 1883, he went to work in the Holyoke mill and, by working, learned textile manufacturing processes thoroughly. It was he who invented a method of weaving the name, Skinner, into



After the founder's death, his sons carried on the business. William, Jr., (left) handled sales in New York. Joseph (right) supervised the operation of the Holyoke mill.

the selvages of the company's goods without the need for a jacquard attachment. Over the years, he matched his brother's achievements and drive as a merchandiser by an equally distinguished effort as a forward-looking mill executive. He had his father's passion for quality and kept Skinner's manufacturing methods abreast of the rapidly changing textile technology of the latter 19th century.

With these two men in charge of the family firm after their father's death, Skinner's was in good hands and continued to grow. All told, the first three decades of the 20th century were a wonderful period for progressive silk weavers. The market for fine fabrics was expanding with the country's growing population; the sharply rising demand of women for more luxurious clothes, and the emergence of the dynamic ready-to-wear industry.

William Skinner, Jr., was one of the first textile merchants to appreciate the value of national advertising. At his insistence, Skinner's bought space regularly to advertise their cloths. Skinner's advertisements, for example, appeared often in the *Saturday Evening Post*. Most people, past the age of 40 who read that magazine when they were young, will remember them, and remember the sense of distinction and convincing aura of fine quality and trustworthy performance these advertisements inspired. And it will break the heart of any textile advertising manager today to learn that, as Stewart Kilborne now recalls, these regular appearances in the *Saturday Evening Post*, were paid for with an advertising budget of less than $40,000 a year.

In 1926 William Skinner sensed the need for some new energy and young blood in Skinner's merchandising operations. Silk fabrics were in strong demand; Skinner's reputation was high, but the fabric business, he realized, was growing tricky. Even the best satins would be hard to sell if the style trend turned away from satin.

William remembered his young nephew who had quit Yale to get married and who had not been to proud to take a job in the mill. Such independence of character and willingness to work might be useful in the New York fabric market, he decided. And so he summoned Stewart Kilborne down to Union Square, where the company had its sales office, and sent him out to sell.

Moving about the market, keeping his eyes and ears open, Stewart began to sense that satins were good, but that dress manufacturers wanted more crepes. The great era of crepes, that was to last for many years, was beginning, and the smart thing for Skinner to do, Stewart told his uncle, was to expand its line of crepes, and make Skinner crepes as much respected as Skinner satins. His uncle promptly placed Stewart in charge of crepe sales, and he, in turn, worked hard to expand Skinner's range of crepe offerings, thus winning for the company a profitable share of the burgeoning trend to these softer fabrics in womenswear.

In those days, Stewart was, as he is now, deadly serious about the business of making and selling fabrics. But textiles were not the whole of his life and he could not find enough outlet for his youthful high spirits and superabundant energies in hard work. As befitted a married man and a rising young textile executive, he had given up his motorcycle. His zest for speed in the late 1920's impelled him to take up aviation. On Saturday afternoons, after spending the morning in his offce, and on Sundays, he took flying lessons at the Old Country Field out on Long Island. Mrs. Kilborne, then expecting her first child, waited for him in a car on the edge of the field. She confesses now that it was with some anxiety that she watched her energetic husband zooming about over the trees in his early solo flights; but in those days she was young and brave enough to be as nonchalant about the whole business as he was.

In no time at all, Stewart was flying well enough to win his transport pilot's license—one of the earliest issued by the Federal Government. He put the license to good use, too, taking up passengers for short flights for $5 a head. He also found use for his flying skill in

(Continued on Page 66)

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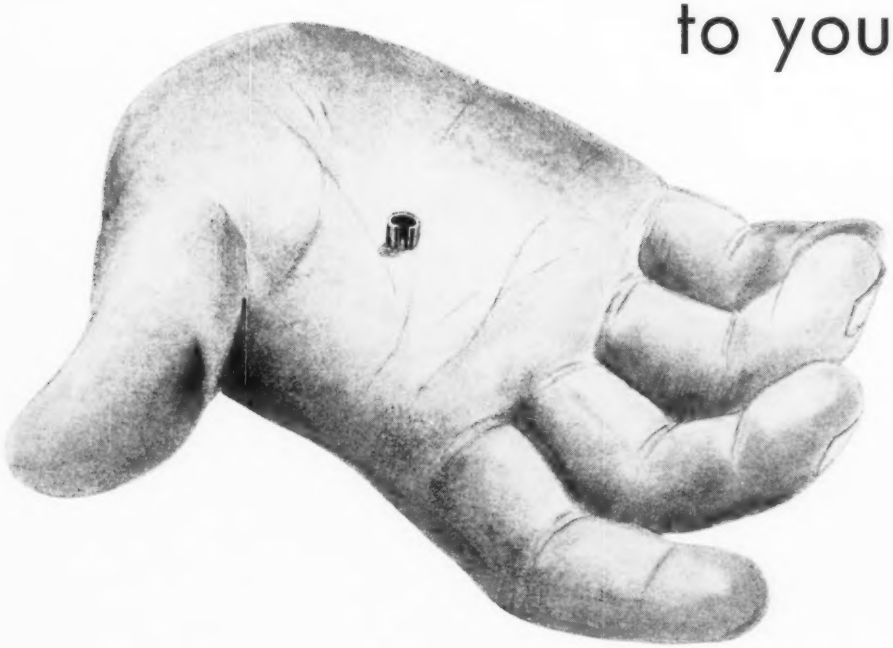

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Back in the 1920's Stewart Kilborne was an ardent flyer. Here he is shown in his own plane making one of the first deliveries of fabric by air. He flew a consignment of Skinner yard goods to Frear's in Troy, N. Y.

his business activities: he was one of the first business men to fly his own plane on sales trips. Today he is proud of the fact that he personally made the first delivery of fabrics by air, taking his own plane one day to rush a needed shipment of piece goods from New York to Frears in Troy.

Skinner's Tries Rayon

Meanwhile his daily work as a salesman for Skinner fabrics was enriching his knowledge of the whole textile merchandising picture—a scene that was changing rapidly under the impact of rayon's growing use. One day in the early 1930's he came to his uncle with news of importance to Skinner's. The company had for years sold large quantities of its famous cotton-backed silk satins for use as garment linings. These linings in fact were the backbone of the Skinner business.

Stewart broke the word to his uncle that silk linings were on the way out. It was time, Stewart told William Skinner, to start switching over to rayon. His uncle was reluctant to think that Skinner's after weaving silks for over 80 years, might have to introduce a rival to the queen of fibers. He was open-minded, however, to the point of authorizing Steward to make a trial of rayon.

Stewart accordingly went to a large rayon yarn producer and asked them to recommend a weaver of first quality rayon lining fabrics. With this firm he placed an order for 250,000 yards and sold them at a profit. Uncle William needed no futher persuasion. From that time on Skinner wove rayon linings in its own mill.

The ice was broken. Thereafter, diversification and variety became important elements in the Skinner way of doing business. Tradition is a great thing and no one values it more highly than Stewart Kilborne. But he is also fully aware that an inflexible adherence to old ways has been the undoing of many a fine old New England mill. He realizes that tradition and high quality goods are valueless in the fashion industry unless coupled with equal amounts of willingness to try new things and a determination to keep abreast of change.

As part of this policy of trying new things, Skinner acquired the Truhu Silk Corp. in 1932 and, with it, Truhu's line of washable silk crepes based on a special dyeing method that enabled the fabrics to remain colorfast when washed at 140°. What proved to be more important, however, was Truhu's print department which Skinner has maintained and expanded with great success.

By the mid 1930's Skinner had moved over into synthetics in a big way. To its production of these fabrics, the firm brought the established devotion to high quality that has been its great principle since the company was founded. During the war years, Skinner wove nylon parachute cloth, and with the end of war work in 1946 came back into the civilian market with fresh and lively merchandising ideas and new fabrics. Among these was the patented Sunbak satin lining, a cloth which ingeniously combines a napped wool back with a rayon satin face. It thus serves a double purpose, providing a warm interlining with a conventional dressy satin lining cloth.

In 1947, after filling a succession of increasingly important posts, Stewart Kilborne became president of Skinner's following the death of his uncle. Under Stewart's leadership the company has learned to bear its years and formidable reputation lightly. With Stewart, the old traditions are subordinated to the need to do business successfully in the complex and rapidly changing textile markets of today. It is his policy to maintain traditional Skinner high quality, but direct this valuable asset into new markets and into making the kind of fabrics that are wanted by consumers today.

Bringing Style to Staples

How this policy works is demonstrated by Skinner's linings department. Linings have long been a major item of the company's line, but Stewart realizes that the old type of linings are not enough. For menswear, for example, Skinner has brought out with great success a whole group of styled-up lining fabrics featuring stripes, printed linings and patterned dobby weaves.

Currently the styling and selling of menswear linings is in the charge of Stewart's son, young Robert S. Kilborne III, better known as Terry Kilborne. Like his father and his great uncle William, Terry, who is now 28, left college before graduation, so great was his interest in the family business. He brings to his work an enormous enthusiasm and zest as well as a compelling drive as a salesman. Last year, the younger of Stewart's sons, George, joined the firm fresh from a background of Yale and the Navy.

When we remember that William H. Hubbard and William Skinner, both like Stewart, grandsons of the original Skinner, are active in the business, it becomes evident that management of the Skinner firm is largely a family affair. Will Hubbard is treasurer and also a vice president. William Skinner is secretary and a vice president. Incidentally, his son, young William Skinner III, last year went to work for Skinner in the New York office.

All these descendants of old William Skinner work well together, each respecting the abilities of the other. This harmonious cooperation prevailing among the grandsons of the founder is one reason why Skinner's continues, despite its age, to be a successful and growing textile operation.

As part of Skinner's important function as a supplier of fashion fabrics, the company's womenswear department has in recent years expanded its line of novelty fabrics which include a diversified line of prints. Under the management of vice president, George W. Gibson, another grandson of the original William Skinner, the department has maintained the line of bridal satins that has made Skinner a household word in the United States.

(Continued on Page 70)

Every new fiber developed brings to the textile plant both opportunities and problems. New physical characteristics of the fibers usually require changes in processing equipment. Hundreds of variations have been made in Herr Flyers to accommodate the new yarns. Many special Herr Conical Ring and Traveler combinations have been produced. If you have a spinning or twisting problem — Let us help you.

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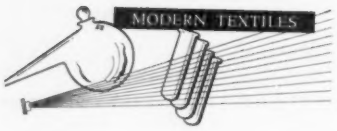

Report from JAPAN

By B. Mori

About-Face on Staple—*OSAKA*—The Government's official policy is to encourage increased production of rayon and other synthetic fibers. However the Ministry of International Trade and Industry has warned yarn producers here that they are expanding rayon staple production capacity too rapidly and has advised a slowdown. MITI's assumption is that the manufacturers, spinners and weavers of staple are unduly optimistic over export prospects in 1956.

Industry sources are divided in their reaction to the MITI attitude, with most manufacturers apparently in opposition. Some of them complain that it is not good investment-management to build plants aimed at the market of one year ahead—that they are looking forward, in their construction plans, to demand in 1960. At present, it is planned by March, 1957 to boost staple capacity 25% over the December 1955 level, thus coming within 10 per cent of the level that the Government expects will be necessary by 1960.

It is widely agreed that MITI has no direct power to order a cutback in expansion plans. But MITI is said to have a secret weapon. It is reported that the Minister is prepared to request the big banks, whose loans finance the plants, to restrict credit lines. Since Government-established loan priorities, through the Bank of Japan, control industrial credit to an important extent, this weapon could prove to be extremely effective.

New Synthetic—The industry is awaiting a full report on a new synthetic fiber developed by a Kyushu University professor under a Government research subsidy. It is said to be lighter than nylon, more dyeable, and cheaper to manufacture. Other than these facts, and the report that the new fiber's basic raw materials are castor oil, coal and petroleum, details are lacking at this moment. Meanwhile, the long-heard reports of new "imported" synthetics to be made here have become connected with individual firm names in trade discussions. It is reported that Kanegafuchi Kagaku K.K. is negotiating to make Dynel, while Mitsui Sekiyu Kagaku K.K. and Mitsubishi Kagaku K.K. are interested in Terylene. The report with regard to Mitsui Sekiyu Kagaku apparently relates to an earlier report, previously noted here, concerning Toyo Rayon Co.'s plans for a polyester fiber, because Toyo Rayon is one of the former Mitsui companies which owns a share in the new petro-chemical firm, Sekiyu Kagaku.

Cotton Quota Problems—Quotas established for cotton textile exports have come up against these problems: recognition of "excessive" contracts already approved before the quota; compensation of American importers for losses incurred on contracts which will not be fulfilled; the dangling problems of specific quotas on ginghams and velveteens. It has become obvious that it is easy to set a quota but difficult to administer it. Because they are concerned over American mistrust of their system, the manufacturing and exporting industries here recently addressed an appeal to their American competitors for more confidence. They implied that the system is not only a temporary expedient, but a semi-permanent policy.

Other quota matters under discussion include: a proposal to limit or control exports of wool textiles and other wool products; quality controls and possibly price controls for pillowcases.

Late News Notes—In its revised draft of the proposed textile industry regulating law, MITI has removed the powers, which it had sought, to set price ceilings on export goods and to order production curtailment. As it stands now, the law would give the Ministry the power to regulate the size of producing mills and the products which they may manufacture . . . Negotiations in New York for a jointly-owned acetate plant did not produce a final agreement between Mitsubishi Rayon Co., Ltd., and Celanese Corp of America. Discussion on details continues at this writing. . . Imports of rayon pulp were 78,000 metric tons in 1955, compared with 99,500 tons in 1954. . .

Yarn spinners' meeting hears

Du Pont has big plans for Orlon

A STRONG sense of confidence that the market for Orlon acrylic fiber so far has only been scratched was demonstrated last month by Du Pont's Textile Fibers Department. More than 200 representatives of 50 yarn spinning companies at a special day-long meeting in Wilmington, Del., were told that Du Pont was steadily improving Orlon; that new forms of Orlon would be available in coming months, and that the company was vigorously searching out new markets for this fiber.

Andrew E. Buchanan, general manager of the textile fibers department, also assured the yarn spinners that supplies of Orlon in the months ahead would be more plentiful. By the end of 1956, he said, Du Pont's plant at Camden, S. C. would be producing Orlon at the rate of 60,000,000 pounds a year. By 1958, the projected new plant at Waynesboro, Va., will be turning out an additional 40,000,000 pounds yearly, he noted.

Among the improvements in Orlon during the past year summarized by Ambrose W. Staudt of Orlon's technical service, were improvements in the static protection of high shrinkage staple. It is no longer necessary for spinners to use a bale of staple as soon as they receive it, to be sure it is adequately protected against static in spinning, Mr. Staudt said. High shrinkage staple also has more shrinkage than last year, permitting spinners to make better high bulk staple when blending with regular staple.

Other improvements in Orlon described by Mr. Staudt are: better crimp and finish; better dyeability; reduction of tow breaks from an average of 1.4 breaks in every carton last April to one-tenth of a break per carton by last December.

Last April, Mr. Staudt said, only 30% of tow cartons shipped to customers were of the no-break type. During January this figure had climbed to 90%. He stated that Du Pont expected to reduce the number of breaks until sometime during 1956 all tow will be of the no-break type.

New forms of Orlon to be introduced shortly are:

1. A new version of low shrink or regular staple. This product will be more uniform in shrinkage and its average shrinkage will be somewhat lower than the present product. When combined with improved high shrink staple, the new regular staple will increase the quality and make easier the production of high bulk Orlon yarns.

2. New 4½ and 6 denier per filament staple and tow.

3. New 1.0 denier staple for spinning fine count yarns. This staple is now being tested and will be available commercially later in the year. Also being tested in the laboratory are 10 and 15 denier staple and these are expected to be available for commercial evaluation before the end of the year. In addition to these fine denier developments, high shrinkage tow is available already in 2, 3 and 4½ denier per filament. This tow, Mr. Staudt said, is a somewhat special product for use on the Pacific Converter and has no special advantages in the Turbo-Stapler system.

4. Color-sealed black staple, now available in staple form, will be available as tow before the third quarter of 1956.

5. A whiter and more dyeable form of Orlon.

Speaking about the new whiter Orlon, Lee Bidgood, Jr., of Du Pont's dyeing and finishing technical service, said that this staple will have improved dyeability with cationic or basic dyes. He pointed out that the receptivity to dyes of Orlon was improved about 30% two years ago; the new, whiter staple will increase ease of dyeing by another 40%. With the whiter staple, dyeing time for deep shades will be shorter; a rich jet black, he said, will be obtainable in about three hours at 205° F.

Talks on new marketing developments for Orlon were also delivered at the meeting. A series of speakers reported on the company's merchandising and promotion drives to increase consumption of Orlon. Among the markets for the fiber expected to show great enlargement in their consumption of both woven and knitted Orlon are: men's suitings; women's coatings; dresses including jersey; shirts and blouses; sweaters and handknitting yarns; men's and women's underwear and nightwear; children's wear; blankets.

Potential new markets for Orlon acrylic fiber were discussed by this panel of Du Pont market development men at the Yarn Spinners' Conference sponsored by the company at Wilmington, Jan. 31.

Mylar Prices Reduced

The Du Pont Co. last month announced a reduction of 25¢ per pound prices of Mylar polyester film. The reduction applies to all types and gauges except 25 and 35 gauges, the thinnest films. According to the company, this is the third reduction since the start of commercial operations at Circleville, Ohio, in the fall of 1954. The price of Mylar now ranges from $2.25 a pound for most heavy gauges to $4 a pound for the very thin 25 gauges.

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SET-O-CHINE
Stabilized Washfast Lining Finish
Nylon and Orlon Lenos
Lining Fabrics
Industrial Fabrics for Civilian and Military Use
MILIUM
THE Kenyon PIECE DYEWORKS INC.
"KENYON OF KENYON, RHODE ISLAND"

Kilborne

(Continued from Page 66)

Gibson has introduced shrewdly conceived merchandising tactics based on close working with the retail stores whose piece goods departments are the major outlets for Skinner's bridal satins. The department also carries virtually every important category of women's dress goods. Skinner's traditional devotion to quality is maintained of course; but equally important is a lively awareness of the freshest style trends.

Thus in the 108th year of its existence, Skinner can equal the newest firm in fabric marketing for freshness of its approach and style awareness. And much of the credit for this energetic and imaginative youthfulness goes to Stewart Kilborne, a man who brings a seriousness and dedication to his work that has won the respect of all who know him. Whatever he undertakes to do, either for his company or the textile industry, he does wholeheartedly.

When for example he was asked to become president of the National Federation of Textiles in 1954, he agreed to give careful thought to the matter. In his mind, the job was not simply an honor, but a task with much arduous work attached to it. He was willing to accept the post only if he was convinced that he would have time to spare from his pressing duties as head of Skinner's to make a valuable contribution to the Federation.

Finally, he agreed to become president for one year because it seemed to him, in the light of his strict New England conscience, that one year was the most he could spare. As president of the Federation he did an outstanding job, those who worked with him testify. His major aim was to increase the Federation's weight in the industry by drawing more individuals into its activities. As a result, during his period in office, the number of standing committees and the individuals working on them were greatly augmented. In his other activities outside his duties at Skinner's such as his work as a director of The Equitable Life Assurance Society and as a trustee of Union Theological Seminary, Stewart is known for the same conscientious application and seriousness of purpose.

This sense of responsibility and dedication not only to the interests of his own company but to the whole textile industry are essential components of the man. They are traits that have earned him the respect of all who have worked with him. Surely, if old stern-faced, spade-bearded William Skinner, the man who founded the company back in 1848, were alive today, he would have reason to be proud of his grandson.

Metlon Output Rising

Metlon Corp. has doubled the floor space in their Stamford, Conn. plant operating on a 24-hour basis. Much of current production, according to the company, is given over to Metlon with Mylar.

The company also announces that they are offering a combined yarn of Metlon and Du Pont's thick and thin rayon. The rayon is made in 1100 and 2200 deniers. The yarn is said to create a doupioni effect that is especially suitable for drapery and casement cloths. The yarn is also said to have good drying characteristics which made a wide color range possible. The combined yarn may be used either in warp or filling.

Progress in Checking Design Piracy Shown by New Decision

Converters and fabric manufacturers interested in protecting their designs against piracy will be interested in a New York Supreme Court decision bearing on this problem. Here is a digest of the case prepared by the Institute's counsel.

A converter sold to a customer a 15 yard cut of goods. The sales agreement contained a design protection clause to the effect that the customer would not copy and reproduce the design. The buyer, however, had another converter actually copy the design. The original converter who had sold the goods, brought an action for unfair competition against his customer and the converter who had copied the design allegedly in an inferior manner and offered it for sale at prices substantially less than those of the original converter.

The court decided that, because of the circumstances under which the copying was done, the complaint stated a good cause of action for unfair competition. The court also held that the converter who copied the design was subject to the suit even though he asserted that he was not a party to the original transaction. An appeal has been taken to the court's decision.

The Textile Distributors Institute believes, and has so advised its members in the past, that a converter has a good chance in a law suit charging design piracy if he sells his goods under these conditions: if the contract or sales agreement signed by the buyer has a clause under which the buyer specifically states that he will not copy the design.

The Institute's counsel is of the opinion that if the case reported above is affirmed on appeal, it will be significant in showing that an action for unfair competition may be maintained by the original seller against a third party which acquired the design from the seller's customer if it can be shown that there was any privity between the customer who signed the sales agreement with the design protection clause and the third party which did the copying.

In TDI's counsel's opinion, it is questionable whether an action could be maintained against the party who did the copying and who acquired the original fabric from the converter's customer, unless it could be shown that the concern which did the copying actually had knowledge of the original design protection agreement, or was so closely affiliated with the converter's customer that the court recognizes the actual privity between the two.

Since trade mark and copyright protection of designs have very severe limitations as to legal protection, a design protection clause in an agreement or sales note becomes important to those converters who are sincerely interested in protecting their designs.

It is reported that some concerns have actually incorporated such design protection provisions on their sample cards. The provisions state that the patterns shown on the cards are submitted to the prospective customer on the condition and agreement that such prospective customer will not copy or reproduce them directly or indirectly.

It would seem desirable to effectuate such protection also in the sale of sample cuts.

TDI Asks Action to End Threat Of Cut-Price Japanese Imports

The Institute is strongly participating in the effort to check cut-price Japanese textile imports, which the Institute regards as a threat to the American textile industry. In November, TDI president, Walter Ross, Rosewood Fabrics, Inc., wrote the following letter to U.S. Senators Lehman and Ives of New York.

"This trade organization represents distributors of textile piece goods. Our members do an estimated gross annual business of $800,000,000 per year, selling their products to the cutting up trade as well as the retail trade.

"Undoubtedly you are familiar with the depressed condition of the textile industry in this country for past several years. A combination of domestic circumstances has led to the recent difficulties of the industry, all of which have been seriously aggravated by the recent heavy flow of Japanese textiles to this country.

"It is an accepted fact that in view of the relatively low standard of living and wage scale in Japan, Japanese merchandise can be imported into this country at a landed price substantially lower than that of competing goods made in the United States. The result is a weakening of the price structure of domestic merchandise and a consequent lessening of employment in the entire industry.

"We understand that various textile mills and trade organizations representing these mills have already presented to you and other interested government officials the relevant facts concerning the effect of these Japanese imports on the textile manufacturers.

"On behalf of our membership, we wish to protest the actions of Congress and certain segments of the executive branch of the Government in the various actions which have encouraged the importation into the United States of Japanese cloths, blouses, finished piece goods and other textile items and products made from cotton as well as man-made fibers.

"The membership of this association is particularly interested in piece goods made of synthetic or man-made fibers in which this country pioneered but which have recently been copied in the form of cheaper imitations by the Japanese.

"It is respectfully requested that you take notice of the effect which these cheaper Japanese imports are having on American industry, particularly that portion of the textile industry which has its activities centered in New York.

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1955 production figures

Man-made fibers at new high

Sharp rise in non-cellulosics sets pace in record U. S. output

OUTPUT of man-made fibers in the United States last year broke through existing records to reach a new high. Production amounted to 1,718,000,000 pounds, according to the *Textile Organon*, statistical bulletin of the Textile Economics Bureau. This figure was a gain of 20% compared to 1954 and 14½% greater than the previous record year, 1951. Output of non-cellulosic plus textile glass fibers was 457,-500,000 pounds, a gain of 33% over 1954.

Rayon and acetate output during 1955 was 1,260,-700,000 pounds. This was an increase of 16% over 1954 and only 2½% under the all-time high of 1,294,200,000 pounds in 1951.

yarn production reached 202,300,000 pounds, a gain of 19% over the previous year; acetate yarn 230,100,-000 pounds a gain of 16½%; and total rayon-acetate yarn 865,100,000 pounds, a gain of 22½%.

Analyzing yarn shipments by trades, the *Organon* reveals that in 1955 tires and related uses received an increase of 82,500,000 pounds over the previous year, a gain of 24½%. Textile yarn consumers received 54,100,000 pounds more than in 1954, a gain of 14%. Exports rose by 3,600,000 pounds, a gain of 38%.

Within "textile" uses, only the hosiery industry takings were unchanged from the previous year. On

U. S. Man-Made Fiber Production

(in millions of pounds)

	1955	*1954*
Rayon Filament Yarn (regular tenacity)	202.3	169.8
Rayon Staple and Tow	337.8	311.5
Acetate Filament Yarn	230.1	197.9
Acetate Staple and Tow	57.8	67.4
Rayon High Tenacity Yarn	432.7	339.1
Non-Cellulosic Yarn	274.0	285.0*
Non-Cellulosic Staple Fibers	105.3	58.8
Textile Glass Fibers	78.2	**
Total Man-Made Fibers & Yarns	1,718.2	1,429.5

*Includes textile glass fibers
**Included in non-cellulosic yarn

Production of rayon staple and tow last year was 337,800,000 pounds, a gain of 8½% over 1954. Assuming that the great bulk of staple imports last year were rayon, the *Organon* estimates that the total rayon staple and tow available last year for domestic use was 507,800,000 pounds, a gain of 37½% over the previous record of 368,700,000 pounds available in 1954. Acetate staple and tow available for use in 1955 was 54,100,000 pounds, 15½% less than the corresponding figure of 64,100,000 pounds in 1954.

The *Organon* estimates that the total staple and tow production last year was 395,600,000 pounds, a gain of 4½% over 1954; and that the total amount available to United States consumers was 561,600,000 pounds. This is figured on the basis of 395,600,000 pounds production, plus imports of 170,000,000 pounds, less producers' exports of 4,000,000 pounds. The total staple and tow available therefore was 30% greater than in the previous year.

United States production of high tenacity rayon yarn in 1955 was 432,700,000 pounds, a gain of 27½% over 1954. Regular and intermediate tenacity rayon

the other hand, circular knit goods took 22% more in 1955 than in 1954; warp knit goods 29½% more; broad woven goods 9½% more; narrow woven goods 23% more; and miscellaneous uses 38½% more.

In 1955, hosiery took 1% of total shipments of "textile" rayon and acetate filament yarn; circular knit goods 6%; warp knit goods 8½%; broad woven goods 73%; narrow woven goods 3½% and miscellaneous uses 8%.

Except for broad woven goods and warp knit goods where acetate yarn is the predominant fiber, the use of rayon continues to be substantially larger than acetate in the "textile" trades.

Preliminary estimates by the *Organon* reveal that world production of rayon and acetate yarn and staple last year amounted to 5,000,000,000 pounds, a new record high. World output in 1955 topped that of the previous year by about 11%. The figures indicate that world output of rayon and acetate staple and tow continues to increase more rapidly than that of filament yarn. In 1945, staple and tow output was 504,-

(Continued on Page 91)

A special report from London

Big exhibit highlights British nylon gains

In England they are using nylon to make fur-like pile fabrics. Shown at the recent British Nylon Fair in London, the coat above simulates Persian blue-grey mink. It was made by Astraka, Ltd.; sells for $115.

By F. C. Livingstone

LONDON:—Britain made a poor start with the manufacture of nylon—just over a year after Hitler invaded Poland and ten months before Pearl Harbor—and the need for all-out war production held up the growth of the infant industry. Except for urgent military needs such as parachutes and glider tow ropes—and stockings brought over by U. S. troops—nylon was unknown in Britain until well after the war ended.

It was not until December, 1946, that nylon stockings were first sold in British shops, and it was really only in 1948 that nylon yarns started to become available in reasonable commercial quantities. That year marked the beginning of production at a big new factory at Pontypool, Monmouthshire. The new factory replaced the temporary production units of the war years and is now the headquarters of the British nylon industry. A second factory at Doncaster, Yorkshire, helps to turn out the ever-increasing supplies of nylon staple demanded by the British textile industry.

What Britain has been able to achieve in the nylon field in the past seven years was shown last month at the first National Nylon Fair in the Royal Albert Hall, London. Production of British nylon yarn has increased 30-fold in seven years. Britain is now second only to the U. S. among world nylon producers. Price cuts last October made British nylon the cheapest in the world. Today it is estimated that the 20,500,000 women over 15 in Britain each wear an average of nine pairs of nylon stockings a year.

In the race for world markets, American production methods are helping the British industry, and American designers are often employed to style the vast range of dresses and lingerie being produced.

One of the highlights in the fashion parades which were a daily feature of the Fair was the collection of lingerie designed for the Taylor-Woods Hoisery Co. by Will E. Cussick, the American designer. These include a nylon shortie in soft shadow-proof jersey, with matching panties, and other undies incorporating the special "swallow" panel-back to ensure a slim, unwrinkled hip-line, also designed by Cussick.

Another firm is introducing to Britain a bra called "First Love" designed especially for the teenager. Hitherto few garments have been made in Britain to meet requirements of growing girls. The "First Love" (made by Gossards) is especially designed to give the junior miss the right amount of support and incorporates special tucks and darts in the back and the cups are intended to "grow" with the wearer without essentially altering the shape or function of the bra.

British women will now also be able to buy nylon-like-minks. The firm of Astraka Ltd., who produced special coats for the Everest expedition of 1953 and have made nylon fureen anaraks for Sir Edmund Hillary and Dr. Fuchs, leading the British antarctic expedition, are showing nylon "minks" and "shadow beavers" at $115 for the full-length coat and $87 for jackets.

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Two examples of current English use of nylon shown at the British Nylon Fair. On the left, is a pajama set of striped knitted nylon made by Raywarp for teenagers. On the right, shortie pajamas of nylon by Taylor-Woods. The fabric is opaque jersey trimmed with insertions of nylon lace and fluting.

PAPERS OF THE
AMERICAN ASSOCIATION FOR
TEXTILE TECHNOLOGY INC.®

AATT

The outlook for Fur-like pile fabrics

Use of acrylic fibers has opened wide new markets for these smart deep-pile cloths resembling fur

By David Weiss

As long as there has been a pile fabric industry we have tried to imitate fur. Years ago we did it with mohair, rayons and cottons, and I'm going to show you a few samples. I'll just pass them around during the evening. These are samples of what the old-time fur fabrics were. So the development of these new synthetic fur-type fabrics is new only in that they utilize new synthetic fibers, new finishing techniques and production techniques, and new concepts of styling. What I'm doing here, in the interests of saving time and not boring you with a lot of descriptive information, is to show you why these fabrics are important. And when I say "these fabrics", I'm not referring to our own product, which happens to be used in these coats. I'm referring to the entire category of the synthetic fur fabrics in the Orlon-Dynel category, which is primarily what they have been in the last two years of prominence. You will notice that these garments look remarkably like fine, precious furs. You will also notice that we have, ironically enough, one garment where they have used precious fur to trim our synthetic furs. This is a pretty good illustration of what makes fur, precious fur and the synthetic fiber simulations of the synthetic furs, important. Maybe we should get down to a little basic analysis. Why should a fur coat, which serves the purpose of keeping a woman warm and covered, go for $1,000? Why do women pay those kind of prices? Why do they belabor their husbands into it? I think it is pretty well established that since time immemorial fur has been recognized as the most alluring background, frame or envelope for a woman. And in the last analysis our entire textile industry is always based on the fact that women want to look just a little more beautiful than God made them.

There is a reason for that. We used to call a pile fabric a three-dimensional fabric. Did you ever notice, if you go into a jewelry shop, he'll display his best pieces on velvet or a low-piled plush? Essentially, he's trying to impress you, as you look at it, with the magnificent beauty of that article. Bedded down in the depth of the pile, the beauties of the article are enhanced. That, in a sense, is a very close parallel to why the woman feels she looks more lovely and more alluring in wearing a fur or anything that simulates fur. That depth of pile, which we called that "third dimension", has that intangible thing—and you will hear it said time and again—allure, beauty, richness. If you take the word "plush", which is a synonym for pile fabric, and remove the first letter, you are left with the word, "lush". "Lush" is one of the most apt and descriptive adjectives for fine furs and fine pile fabrics.

David Weiss

David Weiss is sales manager of the apparel pile fabrics division at Collins & Aikman Corp. and has been with that company for the past three years. Earlier, he was with the sales division of Sidney Blumenthal & Co., handling sales of pile fabrics to women's coat manufacturers, as well as other markets such as men's outerwear and the stuffed toy industry. His duties with Collins & Aikman include the supervision of styling and merchandising of pile fabrics both for womenswear and other apparel.

Woven by Collins & Aikman, the fabric in this coat is 65% Orlon and 35% Dynel

Some of the older types of fur-type fabrics on exhibit here are fairly good simulations and at a distance of a few feet have the visual effects of the furs that they are intended to imitate. Others, not so good. But they all lack one thing. As a matter of fact, in recent years they have tended to merchandise them frankly as "fake furs", which if nothing else is honest. You will note that they lack the richness of hand, the silky, lush feel of fur. Again, because most of them were made from the fibers available before the new synthetics, they lack warmth. And fur-type coats or fur coats are intended to, of course, afford warmth. Finally, they lack durability. For example, those made of viscose plush, such as the ones simulating broadtail effects, and crimmers that you will see, and aside from the defects I mentioned, lack of true fur characteristics, of hand, and lack of warmth, they're very impractical. One good rain and they look like grandma's wet cat.

In the new synthetic fur fabrics, for the first time, we have developed fabrics that not only truly incorporate many of the characteristics of the precious furs but have warmth beyond many expensive furs. This we know by actual laboratory test. Those who are familiar with the warmth and insulative qualities of fibers such as Orlon and Dynel in proper constructions realize this is so. These fabrics have another great advantage: they are comparatively light in weight. We know that even some of the precious furs are considerably heavier than an equivalent-sized coat of synthetics. Many furs in the moderate-priced categories are dreadfully heavy.

While these fabrics are not new in terms of attempting to, on pile fabric constructions, reproduce many of the characteristics of fur, they are new in that they come relatively closer to those characteristics.

For example, where the old rayon plush imitation fabrics looked like a wet cat when they got caught in the rain, the new pile fabrics will dry out beautifully and retain their original appearance.

I think we have the prescription for the person of moderate means who wants all the richness, and allure of precious furs but can't afford to pay the price. These are the people who in recent years have gravitated away from the heavy, bulky, moderate-priced furs. And that is why I think the new synthetic fur type fabrics have had the impact that they have made. They have filled a much-needed place. They are not just a gimmick or a fad.

I spoke a minute ago about the true furs. We had a little problem. We have been beleaguered by spokesmen for the genuine fur industry who seem to feel that when we develop these fabrics we are taking bread out of their mouths. I remember a quote by Mr. Ashbrook, of the Interior Department, associated with the Wildlife and Game Division, as spokesman for the fur industry, saying that we were confusing the consumer. We were, he inferred, selling these coats because we were letting the consumer believe she was buying a genuine fur coat. If that is so, either the American woman who buys these coats is a far more illiterate person than I would like to believe, because when a label says, "Woven by Collins and Aikman", or "a fabric from Princeton Mills", or "a fabric by So-and-so", I don't see how they can mislead her into thinking she is buying genuine fur.

It is true there may have been some abuses. I would say these abuses have not been encouraged by the reputable and leading mills, making this type of fabric. I think in some cases perhaps the retailers went overboard in their terminology in describing these coats, and maybe they used words like "man-made fur", "the fur that comes out of the laboratory". Well, maybe that is stretching it a bit.

Fur Coat Makers Benefit

We like to say, "a fabric". We like to categorize it as a fabric, with many of the characteristics of precious furs. I don't think there is anything wrong about that. If we say it is fur-like—what shall we compare it to, a table? We're comparing it to what we believe it is like. The American woman still has the prerogative of going to the store and deciding whether it is fur-like enough for her taste or not. The textile industry is not motivated by a desire to produce things that will destroy other industries. It is motivated by the simple need to develop products with the new tools and techniques at its command; products that are salable; that will make new markets. Such an approach is basic in our American economy. Incidentally, these synthetic fur fabrics are so fur-like that, in order to manufacture them properly into coats, fur techniques rather than conventional cloth techniques, are used in sewing and making the garments. Thus these fabrics have provided work for thousands of workers in the fur industry who may not have had work in the depressed state of the lower-priced fur market, where coat volume lies. Here again, I don't think we have done a disservice to the fur industry.

Now it might be appropriate to talk about the specific characteristics of these fur-like fabrics. Not quite three years ago, Borg Fabrics Corp. introduced the first of these fabrics. Borg's cloth was a special type of knitted construction utilizing a blend of Orlon and Dynel in the face. Specialized finishing techniques were developed to achieve the height of pile, and lustrous and silky characteristics that characterizes synthetic furs.

When the impact of the new coats was made known, other fabric manufacturers put their techniques to work. Special techniques were worked out by each

manufacturer, and, I think, each is honest enough to claim that ours is by far the best. At my company, Collins & Aikman, our feeling was that there is a place for a woven pile which gave a different characteristic than a knitted pile in the sense that is was more compact and dense. We call it more fur-like. Although our friends in the knitting industry disagree, we claim for our fabric certain characteristics which we feel are important. On the other hand, theirs have valuable characteristics as well. The point I make is the genesis was the development of an Orlon-Dynel fabric, to produce a pile. The fibers used are essentially hydrophobic, which means that water isn't going to hurt them. They may look like a wet cat while wet, but they dry out perfectly. We have had some problems. When these coats first appeared on the market they were sold with a label which either inferred or clearly stated that under certain conditions —and those conditions were not broadly defined— they could be drycleaned. The fact is that up to this date, it is not possible to state categorically that synthetic fur fabrics can be drycleaned. To be safe about it, we have found the only thing we can recommend is fur-type cleaning, which is substantially more expensive than drycleaning. Drycleaning is safe when done by some methods, and it does a horrible job when done by others. Until we are assured that there is a drycleaning procedure readily available to almost any drycleaning establishment in the country, and that the chances of their mistreating them are negligible, we cannot advocate drycleaning.

Another development is taking place. You saw a coat of pale gray and a little coat of pale blonde. Initially, these were the big colors in the introduction of the fabric. With better dyeing and finishing techniques, darker colors were introduced with great success. We can look to an enlarged percentage of total units sold in these medium and dark tones. This trend will decrease the cleaning problem from the consumer standpoint, because you just don't get a brown coat as dirty as quickly as you do a pale beige.

Dye Techniques Improving

The fabrics that have been introduced up to this point represent simulations of essentially two precious furs: beaver in the pale shades, and seal in the dark shades. Those dark shades have been limited until very recently. But now we are developing and enlarging upon the deep shades. Thus there will be a great deal of color interest in these fabrics in the coming fall season, lending themselves to a great deal more amplified styling.

Meanwhile, other developments are taking place. Recently, one of the major producers, Princeton Knitting Mills, brought out a new fabric tradenamed "Mutation" that caused a little furor in the fur industry. Mutation is, essentially, a pile fabric treated in such manner as to implant upon it the striping that characterizes genuine mink. I don't think that what has been produced at this point is the last word in the reproduction of mink, but I think it is a major step, and I respect the ingenuity of the Princeton people for putting it out.

Other types of fur simulations, I know, are on drawing boards, or in laboratory stages. One of the new ones that has been introduced very recently, by Borg is a fabric constructed on the knitted construction of Borgana made of a new and interesting fiber, B. F. Goodrich's Darlan. This new fabric is in the same basic category of a beaver-like silky, dense piled fur fabric. It is a fiber still in the pilot stage of production.

The entire field of Orlon-Dynel pile fabrics is only beginning to open. One observer estimates that there would be less than half a million total units of all the Orlon, Dynel fur-type coats produced this season. From what we have been able to determine since then, with the season practically over, that has been an uncannily sound analysis. But, remember, these fabrics are not limited to coats. They have other end uses such as stoles, little evening jackets, and other things are being done, to say nothing of accessories such as hats, little muff bags, regular hand bags. Gloves have been made. It is not unreasonable to say that, with the appeal this has for the American woman, and with this broad selection of different types of apparel to pick from, there is a place in a wardrobe for at least two units of wearing apparel utilizing the new fur fabrics.

So we have this big potential ahead of us, and we are doing, we think, a lot about it. I think I can safely say that the fabrics on the market now, the established fabrics, for 1956, will be improved. They will be basically the same, because they are good; they are accepted. But we are improving. I know we have added certain very desirable features to our fabric, which we'll announce in due course. Others have done the same.

All this means more excitement and appeal to the consumer, so that perhaps to talk about these fabulous synthetic fabrics is not entirely out of order among a group of men whose development and research work is responsible largely for them and many other types of textiles that appear on the market every day.

Knitted by Princeton Knitting Mills, the fabric in the skirt is striped to resemble mink.

Here's how you can

Dryclean deep-pile coats

By Albert E. Johnson

PROBABLY no fabric ever gave rise to more research or greater concern in our industry. And understandably so. Faced with a ratty looking coat after one drycleaning that no customer could be expected to be happy with and the prospect of these coats becoming extremely popular, the cleaner had the choice of solving his problem or losing a large source of revenue, possibly to fur cleaners.

The manufacturers, on the other hand, were concerned too. Expensive fur cleaning for an inexpensive non-fur coat is not conducive to repeat sales, if not necessarily a deterrent to initial sales. But fur cleaning methods seemed for a time the only solution of the problem of what to do about the ratty condition of drycleaned garments.

Our Institute got into its research on ways to dryclean these fabrics fairly early in their development. We obtained six coats in the fall of 1953, had them worn for three months, and cleaned them by various methods. We then published our findings in March, 1954 and from what cleaners tell me today, it was this bulletin that showed the way to today's successful servicing of these coats on a volume basis by most cleaners. I have just completed a small survey of a number of plants in the area and the consensus is that these coats are drycleanable and customers are happy with the results. I asked one young lady whether she'd buy another coat, now that she has had the experience of most of a winter's service and one drycleaning, and the answer was an emphatic "yes". They're warm, light weight, and good looking—even at $5.00 per cleaning, she said, the coat is a treasured part of her wardrobe.

Albert E. Johnson

Mr. Johnson has been active in the trade and public relations field for many years, having started his career as general manager of the Springfield, Mass., Better Business Bureau. While with the Springfield organization he was chairman of the National Fabrics Committee of the Association of Better Business Bureaus. In 1947, he accepted a post as trade relations director of the National Institute of Drycleaning. Mr. Johnson has written many articles for the trade and consumer press on drycleaning and the behavior characteristics of fabrics and garments in cleaning processes and end-use. Active in the work of the American Standards Association, he helped in the preparation of the American Standards for rayon and acetate.

Now what do cleaners say? One large firm I contacted had cleaned 400 so far this winter with only one complaint from a finicky customer. Not a bad average of customer contentment for even Harris Tweed. A smaller firm here in the city did some 60 garments with no complaints since he stopped farming them out to a fur cleaner a month and a half ago. A letter received yesterday from a firm in Rosemont, Pa. said "we have cleaned several of these coats very successfully following the bulletin's (NID) information to the letter". Two other cleaners in New Jersey whom I closely questioned had the same story to tell —lots of coats cleaned and no customer complaints.

The answer then to the question "can the new fur-like, pile coats containing Orlon and Dynel be drycleaned satisfactorily?" would seem to be very much in the affirmative. But there is this reservation. They cannot be drycleaned in the normal manner of cleaning services. The rules of procedure are very simple, but very strict. To deviate from them invites excessive tufting and matting, more aptly described as a ratty look—a wet rat, that is.

Here are the rules as NID presents them in its bulletin T-324.

Drycleaning—The following precautions are the best we know at present, whether using petroleum or synthetic solvent:

1. Dryclean in a load of light wools. Don't load the washer to capacity since these coats are very bulky.
2. Use a light extraction to avoid creasing.
3. Dry in a cabinet, preferably. However, they can be tumbled dry provided the temperature does not exceed 140°F.
4. After the coat has been dried you may find that tumbling in a cold tumbler improves its appearance somewhat.

Finishing

Don't attempt to finish the pile fabric of these coats! Steaming or brushing merely makes the pile look worse. They should be routed directly from the drycleaner to the lining finisher.

You can improve the appearance of the lining by touching it up with a hand iron. However, don't let the iron slip off the edge of the lining fabric onto the pile fabric. It will damage the pile.

From what drycleaners tell me and from research that has been reported in our trade journals, the critical point of processing seems to be in tumble drying. The temperatures normally allowable in tumble drying and deodorizing of drycleaned garments ranges to a maximum of 160°F., but at this temperature both

shrinkage and matting are induced in synthetic pile materials. 140°F. is the maximum allowable and lower temperatures are preferred. Many cleaners are running tumblers at room temperatures, even though this decelerates evaporation and greatly increases running time.

It has not been established as yet whether drycleaning soap and normal humidity conditions prevailing in charged system cleaning seriously affect the appearance of synthetic pile fabrics, but drycleaners report they have had success in either clear solvent or with detergent at low humidity, handling the coats either by themselves or in special loads of light colored apparel at reduced running time.

For coats that are not heavily soiled, this procedure does a good job of cleaning from all reports. But if excessively soiled, the quality of cleaning may not be up to expectations. In these cases, cleaners advise customers to send in their coats more often.

Fur cleaning methods have been refined in some cases to do a good job of cleaning and refinishing of the pile. The cost of this service is admittedly high. There is disadvantage, however, of not cleaning the lining fabric. As in real fur coats, the lining must be removed and separately cleaned if a satisfactory job is to be delivered.

Drycleaners who have tried both methods report better cleaning results by solvent procedures and while the extra care of processing adds to their costs of operation, the elimination of any finishing of the pile tends to compensate for this cost factor. The prices charged today by cleaners vary from $3.50 to as high as $7.50, perhaps even higher in deluxe service establishments and perhaps even lower in some instances. But not much lower is our guess because of costs and the high risk involved. There is always the hazard of a slip-up with consequent liability for replacement.

As regards spray type cleaning preparations, it must be apparent that only limited removal of surface soil can be expected by their use. Deep down, thorough cleaning of soiled fabrics of any kind is accomplished most efficiently by immersion type processes of cleaning.

One question I've put to all cleaners in these contacts is this: Are these coats really satisfactory in appearance to them? The answer in all cases is a guarded yes. It can't be said that these coats look exactly as they do in the store. Even during wear the pile takes on a characteristic separation which can be acceptable. In drycleaning this kind of tufting which we are accustomed to in mouton lamb may become slightly more accented. But all cleaners seem to feel that their customers do not regard this as objectionable.

Different constructions of synthetic pile fabrics will be tried as the popularity of these fabrics gains ground and we expect already from our observations that some fabrics are less hazardous to clean than others. But taking all pile fabrics together as of the moment, it may be said that they are drycleanable within the limitations stated and that the drycleaning industry is happy to have all this type of business it can get.

Hosiery Tests

(Continued from Page 60)

plication of load up to and including 10 pounds the percent stretch was in the expected order with the most tightly knit stockings showing the least percent stretch. However, at the end of the application of the ultimate load, the most tightly knit stockings (42 CPI) showed the greatest percent stretch while that knit at the in between tension (38 CPI) showed the least. This condition continued to exist after the stockings had been allowed to hang freely for twenty four hours.

The obvious conclusion to be drawn from these results is that if a rayon stocking is knit with too many stitches per inch, the yarn will elongate too greatly under repeated stress as the tight knitting has reduced the fabric elasticity and thus put more strain on the yarn. Such a stocking would then elongate more under repeated stress in wearing than one knit looser and where a greater degree of fabric elasticity had been retained.

Conversely, if knit too loosely, there would be insufficient fabric elasticity and the stocking would also become baggy in wear. Thus there is an optimum knitting tension for each gauge and denier of a high elongation yarn and this can most readily be determined by a stretch and recovery test.

It should also be noted that in the case of a high elongation yarn the previously discussed yield effect was of considerable magnitude and would have to be taken into consideration in setting up "after wearing" control limits.

The Stretch and Recovery Test is also of value in testing the elastic webbing used in knee high and over the knee stockings. As an example, on one occasion some webbing had come in contact with oil. After this had been removed it was desired to find out if the material had been damaged sufficiently to warrant its being discarded. Loops were made from the webbing, placed over the jaws of the tester and a Stretch and Recovery Test made. The results of this test when compared to one from webbing that had not been in contact with oil proved that the webbing under test was safe to use.

The strength of the seam of the elastic webbing loop as well as that of the seam attaching the webbing to the stocking can also be checked by repeated oscillations of the tester as described in the Stretch and Recovery Test. However, in this case, due to the large number of cycles required, it is recommended that only testers of the inclined plane type be used and that the weight be increased to 20 or 25 pounds.

Carbide Forms Silicone Division

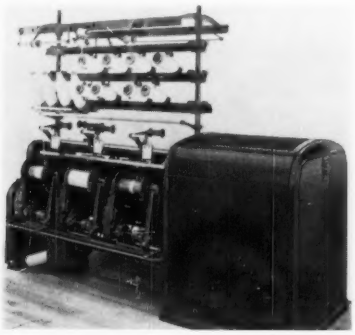
Union Carbide and Carbon Corp. has formed a silicone division to take responsibility for the development, manufacture and sale of silicone products. These tasks were previously handled by Linde Air Products Co. Silicones, which have been marketed under the "Linde" trade mark are now called "Union Carbide Silicones."

William B. Humes was appointed president of the division; T. J. Coleman was named general manager. According to the company, the capacity of the new silicone plant at Long Reach, W. Va., will be enlarged early in 1956. They plan to spend an additional $1,000,000 for expansion.

New MACHINERY and PRODUCTS

New Whitin Redraw Doubler

An entirely new machine, the Whitin Spoolmatic Redraw Doubler, has been introduced by the Whitin Machine Works. According to the manufacturer, the machine opens up for the first time to a large segment of the textile industry a highly economical method of uptwisting multiple ply yarns. Such yarns include rayon or nylon tire cord; cotton or synthetic tufted rug yarns; wool and synthetic yarns for woven carpets; duck yarns and other heavy industrial yarns using natural or man-made fibers.



The Whitin Spoolmatic is an electronically controlled machine designed for winding one, two, or more ends of yarn onto a double head spool to produce a package which can be used as a supply package on the Whitin Cable-King Uptwister or in the creel of a conventional ring twister.

Electronic controls detect individual yarn breaks, stopping the affected package instantly, and allowing the operator to replace the broken end with minimum loss of time. An electric, full package determinator actuates the knock-off motion, stopping each individual take-up package when it has reached a predetermined diameter.

The machine is designed to wind onto a double head spool at production rates from 100 to 300 yards per minute, depending on the yarn and the number of ends being doubled. Also depending on the type of yarn used, the take-up package may hold up to 8½ to 9 pounds of yarn, with a maximum diameter of up to 8⅝", and have a maximum traverse of 9". The machine can be easily adjusted to vary the angle of helix wind on the spool, a feature of importance when the packages are to be used as supply packages in the Whitin Cable-King Uptwister.

The Spoolmatic is double-sided and may have from a minimum of six to a maximum of 48 individual take-up positions in multiples of six. Subject to the 48 position maximum, users may add more positions in multiples of six, any time in the future.

For further information, write the editors.

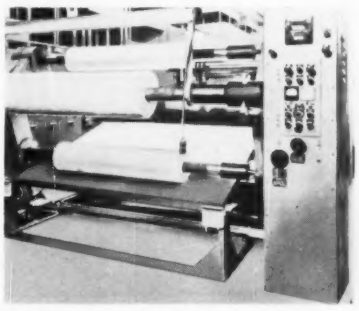
Oilless Ball Bearing Burrs

A ball bearing burr for the spring needle knitting machine has been announced by Precision Knitting Machine, Division of Central City Machine & Tool Co., Syracuse, N. Y. The burr has been under development in conjunction with their high speed multiple-feed spring needle knitting machine. All the cast-off and landers, combination and clearing burrs are now equipped with sealed ball bearings that are said to require no lubrication.

For further information, write the editors.

3-Shaft Turret Winder Available

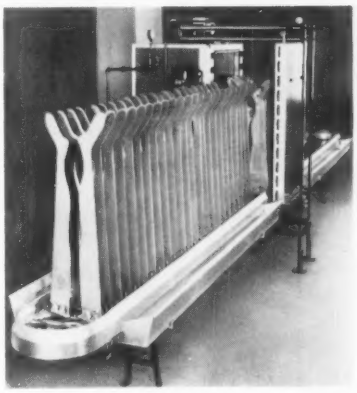
A 3-shaft turret winder for in-line continuous production has been announced by the Hobbs Manufacturing Co., Worcester, Mass. The machine is designed to take a web from a previous continuous process and wind it continuously under controlled tension to rolls of a predetermined diameter (up to 36"). The continuous operation feature reduces winding costs since there is no production loss during the change-over. Uniformity of tension eliminates web distortion and sloppy rolls, thus increasing the salability of the finished rolls.



For further information, write the editors.

Hosiery Finishing Machine

A new hosiery machine that is said to double production without increasing floor space has been developed by Turbo Machine Company. Called the AD-96, it is a 2-operator machine for pre-boarding and finish boarding both seamless and full-fashioned stockings. Double tracks on each side of the machine hold forms upright for dressing or stripping. The machine has a total of 96 boards.



Operators work facing each other. Forty-eight forms enter the cabinet as the Turbo spiders close up like an accordion. Operators then move to the other side of the machine to strip the 48 forms that have just left the cabinet. The AD-96 is priced at $8,000 compared with $5,600 for the Turbo ADS-48, a 48-form machine occupying approximately the same floor space.

For further information, write the editors.

Condenser Tape Offered

The Benjamin Booth Co. announces their Supr-O-Tape, an impregnated fabric condenser tape, which, according to the firm, will not stretch, or swell or open at seams. The tape, it is said, does not need oil and is not affected by emulsions or oils. The tape can be cleaned by detergent, by buffing or by wipe roll covered scavenger roll.

For further information, write the editors.

Stretch Yarns in Production

Shown above is one of the Superloft Stretch Yarn Machines manufactured by Universal Winding Co. According to the company a 216-spindle machine will turn out over 400 pounds of 70 denier stretch yarn a week.

On the Superloft machine, raw yarn is made into stretch yarn by first going through a tension and then a set of feed rolls. From the feed rolls, the yarn passes over a heating element and then through a "false twist" spindle. Twist imparted by the spindle is set in the yarn while it is in its heated, plastic state, and then removed again after the yarn has passed through the hollow false twist spindle. The yarn retains a permanent crimp or wave which gives it the stretch characteristic. Finally the finished yarn is taken up onto a spool. Due to the single process operation the yarn is said to have added advantages of cleanliness and extreme uniformity.

All thermoplastic yarns, such as nylon and Dacron, have a quality called "memory" which gives them a tendency to return to the state in which they were heat set. This produces the stretchability. Universal states that production units of the Superloft machines have been in operation in many mills for the past six months and that pilot models have been running successfully for over a year.

NON-FLUID OIL
TRADE MARK REGISTERED

CLEAN WEAVING!

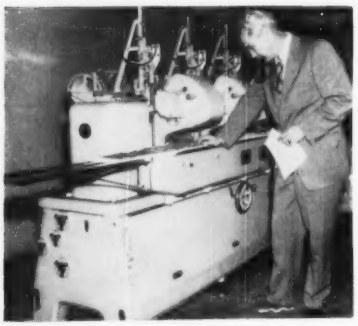
NON-FLUID OIL—the lubricant-leader in textiles—assures clean loom operation. Spattering ordinary oils damage goods in process—while NON-FLUID OIL stays where applied and keeps off yarn and cloth. NON-FLUID OIL gives constant protection against oil-spot loss to 7 out of 10 leading mills. Besides providing clean, better lubrication, NON-FLUID OIL keeps costs down by outlasting ordinary oils 3 to 5 times.

For general oiling of looms, A-No. 00000 Grade NON-FLUID OIL is recommended. Write for free testing sample and useful Bulletin. Proof is in performance.

NEW YORK & NEW JERSEY LUBRICANT COMPANY
292 MADISON AVE., NEW YORK 17, N. Y.
WORKS: NEWARK, N. J.
So. Dist. Mgr.: Lewis W. Thomason, Jr. Charlotte, N. C.
WAREHOUSES
Birmingham, Ala. Atlanta, Ga. Columbus, Ga. Charlotte, N. C.
Greenville, S. C. Chicago, Ill. Springfield, Mass
Greensboro, N. C. Detroit, Mich. Providence, R. I. St. Louis, Mo.

1896 60 YEARS 1956 NON-FLUID OIL SIXTY YEARS OF LUBRICATION SERVICE TO INDUSTRY

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture. So-called grease imitations of NON-FLUID OIL often prove dangerous and costly to use.



High Speed Skeiner

M. R. Garrett, assistant plant manager, American Thread Co. Inc., inspecting one of two British machines his company has bought. These fully automatic machines wind embroidering yarn into pull-skeins, cut the yarn joining the consecutive skeins, manufacture and affix 2 tubular labels for each skein and pack the skeins in three layers of eight into boxes. The output of each machine is approximately 72 skeins per minute. It is understood that no comparable machines are made in the United States.

For further information write the editors.

Orlon-Dynel Spot Remover

"Spot-Out", a new pressure-spray spot remover for Orlon-Dynel fabrics has been put on the market by Kandu Chemicals of New York City. Developed especially for cleaning deep pile fabrics, "Spot-Out" is also extremely effective with lining materials.

TDI News and Comment

(Continued from Page 71)

"We are making every effort to strengthen this industry and provide better products for the American consumers and more jobs for the American working people; we feel that we are justly entitled to the cooperation of our Congress and our government officials in preventing the mass importation of cheaper Japanese items which compete with American-made products.

"Thank you very much for your assistance in this matter."

TDI Supports Exhibit

Walter Ross, president of Textile Distributors Institute, is an honorary member of the committee cooperating with the Museum of Modern Art in the planning of its forthcoming exhibit devoted to fabrics made in this country. Mr. Ross cautions all members not to enter fabrics indiscriminately, but to choose only those they feel are outstanding. All entries must be at the Museum by March 15. Textile firms who have not received entry blanks may get them from the Institute, 469 Seventh Ave., New York 18, N. Y. The exhibit at the musuem, 11 West 53 St., in New York, will be open from Aug. 28 through Nov. 28.

Wick New Member

Philip Wick Company, Inc., has become a member of the Textile Distributors Institute. The firm is a distributor of menswear, coated, print knit, underwear and blouse fabrics. Offices are at 411 Fifth Ave., New York City.

Textile News Briefs

C. Lowrey Stafford, Jr. succeeds Charles L. Gerli as president of National Mallinson Fabrics, Burlington Industries, Inc.

The Chemstrand Corp. has appointed the following men as field development technicians concerned with Acrilan acrylic fiber dyeing projects: **Herbert F. Mahoney, Gerard O'Mahony, William C. Privette,** and **Walter Stump.** The company also announces the appointment of **Alton B. Hollis** as public relations representative. **William P. Tukey** has been transferred to the Acrilan sales division.

Samuel Klein has retired from his post as manager of American Cyanamid Co.'s Midwestern territory.

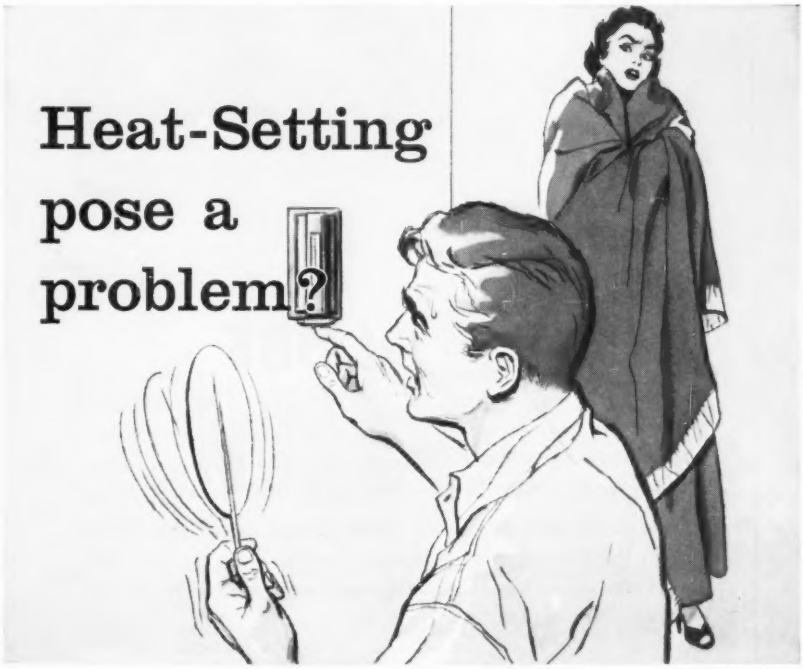
Emil O. Johnson has been made assistant manager of nylon production at Du Pont's Wilmington plant.

A. K. Doolittle has been appointed senior scientist in the research department, Carbide and Carbon Chemicals Co. The company also announces that these men have been appointed district managers: **W. M. Anderson,** New York; **J. K. Marshall,** Cleveland. **Victor J. Kremers** has joined the company's textile fibers department as technical representative for Dynel.

Dorman Compton has been made southern sales representative for The Hilton-Davis Chemical Co.

Rex P. Bennett has been named northeastern representative for Engineered Plastics, Inc.

Alfred P. Rimlinger has been named export manager, Antara Chemicals Division, General Aniline & Film Corp.



SUPRANYL Withstands Heat-Setting

. . . yet is Easy to Remove!

Try this for size — Supranyl, Stein Hall's miracle size for nylon warps. It's unaffected by heat — and still it can be readily removed in your scouring bath. But that's not all! Supranyl, because of its unsurpassed affinity and adhesion to nylon yarns, offers you maximum protection against abrasion in weaving.

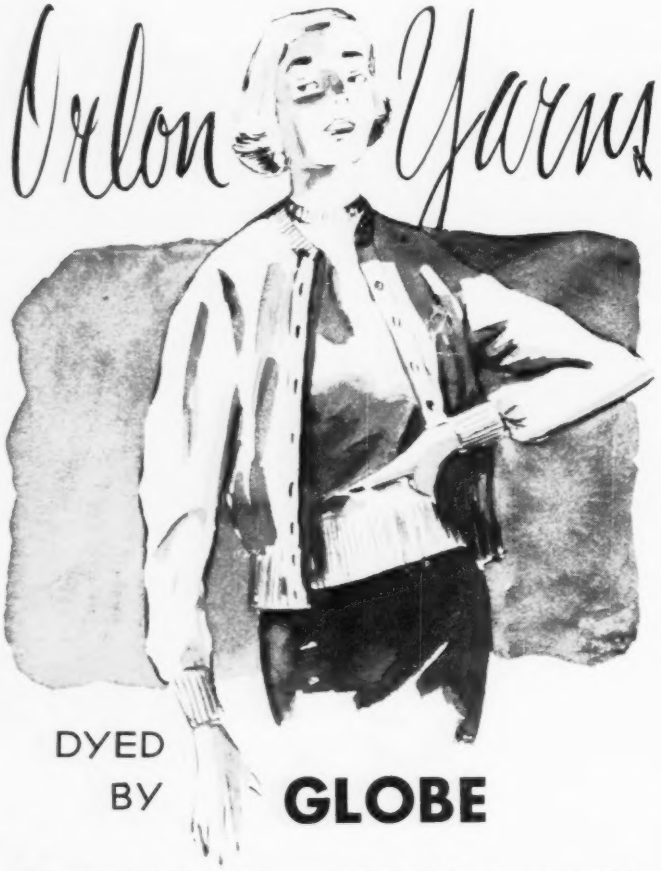
Find out now how Supranyl can save you many dollars in your operation. It requires no additives . . . stands greater dilution . . . and your initial cost is lower. Write today for more information, Textile Department MT-3

STEIN SH HALL

285 MADISON AVENUE NEW YORK 17, N. Y.

Established 1866

Orlon Yarns



DYED BY **GLOBE**

Sweaters knit from butter-soft, lofty Orlon yarns, dyed by Globe, have the cashmere-like quality that delights the heart of style-and-comfort-conscious women without exception.

This is not surprising for Globe technicians had a leading role in the development of present methods of Orlon dyeing, and Globe dyers have been dyeing it continuously ever since, in production quantities.

FOR DYEING ORLON YARN, YOU CAN RELY ON GLOBE

1865 — Globe Dye Works Co. — 1956

Globe does package dyeing on tubes, skein and warp dyeing and bleaching, warp mercerizing and sizing.

91 Years of Service to the Textile Industry

Yarns we process include cotton, rayon, worsted, nylon, linen, blend and novelty yarns. Also Acrilan—Dacron —Orlon.

4500 WORTH STREET, PHILADELPHIA 24, PA.

JEfferson 5-3301

N. A. Ruston W. T. Meinert

N. A. Ruston, director of development and service for Emery Industries, Inc., has retired after 26 years service. He is succeeded by **W. T. Meinert,** formerly assistant director.

George Mathues has been made sales manager of the hosiery division, Hans C. Bick, Inc.

Milton G. Agate, Philip W. Cohn, Jerome C. Sternlight, and **Abe Warshauer** have been named vice presidents of Seneca Textile Corp.

Arthur Hustwit, former manager of Bradford Dyeing Association (U.S.A.), has joined Soluol Chemical Co., Inc., Natick, R. I., as director of technical sales.

J. Edgar Kline has been made acting assistant manager of the newly formed International Division, Textile Machine Works.

Joseph Ross has been made general manager of the fashion fabrics division, Indian Head Mills, Inc.

H. J. Theiler Corp. has taken over all sales and service activities of the American Schweiter Co., subsidiary of Schweiter Ltd., Horgen-Zurich, Switzerland.

Werner Andreasen has formed his own textile brokerage firm under the name of Andreasen Co., New York, N. Y.

Stanley H. Goldsmith, Inc., Philadelphia, Pa., has been named authorized sponger agent for The Cravenette Co.

Reeves Brothers, Inc. announces that **Joseph C. Cobb** has been made director of all synthetic fabric manufacturing operations; **A. N. Mooradian,** general merchandise manager, synthetic fabrics division; and **A. W. Fiur** will continue as general sales manager of synthetic fabrics.

George L. Bond and **E. S. Rothrock** have been elected directors and vice presidents of the Stauffer Chemical Co.

Louis Sergio has joined Universal Winding Co. as personnel assistant.

J. Marshall Cole was elected president of the National Association of Finishers of Textile Fabrics.

J. Achelis W. M. Kelly

Walter M. Kelly has been named president of Commercial Factors Corp., succeeding **Johnfritz Achelis,** who has been made chairman of the board.

H. M. Bailey, Jr. has resigned from the post of sales manager of the Hartford Rayon Co.

Arthur G. Scroggie of Du Pont Co. will receive the Harold De Witt Smith Memorial Medal for outstanding achievement in research on fibers and their use. The medal will be presented by the American Society for Testing Materials.

Anne N. Ferretti has been made fabric stylist and coordinator for American Bleached Goods Co., Inc.

Raymond W. Jacoby, consultant to the Ciba Co., and president of the American Association of Textile Chemists and Colorists, has joined the Department of Textile Chemistry, School of Textiles, N. C. State College for two months beginning February 15.

John H. Markert has joined the industrial division of Tower Iron Works, Providence, R. I., as sales engineer.

Raymond A. All has been appointed assistant to the vice president and general manager of the textile division, United States Rubber Co.

American Viscose Corp. announces that C. Stuart Brown has been named manager of advertising in addition to his duties as manager of public relations; Joseph E. Ross has been made leader of the company's Tire Yarn Section, Marcus Hook, Pa. The firm also announces that Joseph W. McWatters has joined the staff of Samuel B. Lippincott, manager of home furnishings merchandising in New York City; Ernest Pfeiffer has joined the fabric development department as senior technician in New York City.

Allied Chemical and Dye Corp. has leased the entire fifth floor at 261 Madison Avenue, where they already have headquarters on the 21st floor. This space will provide room for the enlarged sales and service offices for "Caprolan deep-dye nylon".

SAFETY in NUMBERS

34

STANLEY Magic Door CONTROLS

prevent product damage at AVONDALE MILLS by equalizing drafts and pressures

Drafts or pressure conditions created by doors that remain open too long cause product damage, upsetting specified temperature and humidity requirements.
But *not* at the various Avondale Mills where *34 Stanley Magic Door Controls* open doors on approach, keep them open the minimum of time required to let traffic through, then close them automatically. Above, is a Stanley Magic Eye Control in operation at the Avondale Mills' plant, Sylacauga, Alabama.

Your mill, too, will benefit through the installation of Stanley Magic Door Controls to operate swinging, sliding or folding doors:

- *To control temperature and humidity.*
- *Save time by speeding up traffic flow*
- *Eliminate maintenance costs due to damaged doors*
- *Improve working conditions*

MAGIC EYE
(photoelectric)
Actuates door when beam is broken.

PULL CORD
Door is operated only with pull of overhead hand cord.

PUSH PLATES
Wall-mounted push or kick plates. Adaptable to many industrial locations.

Write for free literature and to arrange a visit from the Stanley Representative.

MAGIC DOOR DIVISION, THE STANLEY WORKS
DEPT. C, 1092 LAKE ST., NEW BRITAIN, CONN.

Representatives in Principal Cities

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in February, 1956. All prices are given as subject to change without notice.

RAYON FILAMENT YARN

American Bemberg

Current Prices

Effective February 15, 1956

Regular Production Reel Spun Yarn

Den/Fil	No Twist Skeins	Twisted* Skeins & Cones	8½ Turns	High Twist Skeins & Cones 12 or 15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	$2.08
50/36	1.24	1.50	....	....	1.72
65/45	1.14	1.30	....	$1.53	1.58
75/60**	1.04	1.18	....	1.41 $1.41	1.49
100/74**	.95	1.08	....	1.33 1.33	1.44
125/60	.94	1.05	$1.09	....	....
150/120	.93	1.02	1.12	1.27	....
300/225	....	.95	....	.... 1.08	....

* Twisted includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.

** Spun Dyed Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Twist Tubes	No Twist Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Skeins & Cones	15 Turn Skeins & Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.05	1.05	....	....	....	....	....
65/45	1.05	....	....	....	....	$1.42	....
75/45**	.97	.97	$1.08	$1.08	$1.31	1.31	$1.39
75/54	.97	.97	1.08	1.08	....	....	....
100/60**	.89	.89	1.03	1.03	1.23	1.23	1.23
125/60	.84	.84	.99	.99	....	....	....
150/90***	.77	.77	.81	.81	....	1.15	1.15
150/120	.81	....	....	.93	....	....	....

** Bemberg Solution Dyed yarns are spun in 75/45 and 100/60 only. Black 15¢ per lb. extra; all other colors 35¢ per lb. extra.

*** Spun Dyed Black 15¢ per lb. extra.

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Twist Cones	5 Twist Cones
1516	150/90	....	$1.35
1517*	150/90	....	1.35
2000	200/120	....	.96
2025**	200/120	....	.96
3000	300/180	$1.00	....
4000	400/224	1.00	....
6000	600/360	.98	....
8000	800/450	.98	....

* Code 1517 can be run in warp or filling.

** Code 2025-Softer than 2000.

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold f.o.b. delivery point.

American Enka Corp.

Current Prices

Standard Quality Yarns

Standard Quality Rayon Yarns

A. Natural:

Den/Fil.	Luster	Turns	Weaving Cones	Skeins Beams	Skeins Long	Skeins Short	Cakes	3 Lb. Knotless Cakes	Knitting Cones
50/18	E	5	S						1.51
75/10	B	3	S&Z				1.03		
75/18	E	4	S						1.17
75/30	B	4	S&Z	1.12	1.12		1.03		1.12
75/30	B	8	S	1.17		1.32			1.17
75/45	P,E	2.5, 4, 5	S&Z	1.12	1.12	1.18	1.03		1.12
75/60	P	3	Z	1.17					
100/14	B	3	S&Z				.91		
100/40	B,E	12	S						1.17
100/40	B,P,E	4, 5	S&Z					.91	.99
100/40,60	B,P	2.5	S&Z	.99	.99	1.03	1.07	.91	.99
100/60	E	2.5	S	1.01	1.01			.93	
125/40	E	3	Z						.91
150/40	B,P,E	2.1,3	S&Z	.86	.86	.89	.94	.81 .82	.85
150/40	B,E	5	S	.86		.89	.94		
150/40	B,E	8	S&Z	.92		.95	1.00		
150/90	B,E	2.1	S&Z	.87	.87			.82	
200/40	P	3	Z						.79
250/60	P,E	2.4	Z						.72
300/50	B,E	3	S	.70	.70				
300/60	B,P,E	2.1	S&Z	.70	.70		.73	.68 .69	.70
300/60	B	3.5	S	.70	.70			.68	
300/60	B	4.3	S	.73	.73			.71	
300/60	B	7	S	.80					
300/40, 120 H.T.	B	2.5, 3, 4	S	.72	.72				
450/80	B	3	S	.67	.67			.65 .66	
600/80,120	B,E	3	S	.66	.66			.64 .65	
900/120	B	3.4	S	.65				.63 .64	
900/120 H.T.	B	3.6	S	.67				.65 .66	

B—Briglo, P—Perlglo (semi-dull), E—Englo (dull), H.T.—High Tenacity.

B. Tinted Yarns: 5¢ additional per lb.

"Jetspun" Colored Yarns

Den/Fil.	Tenacity	Turns	Weaving Cones	Beams	Cakes	Colors
100/40	Regular	2.5S	1.34	1.34	....	All
100/60	Regular	4 S&Z	....	....	1.26	All
150/40	Regular	2.1S	1.21	1.21	....	All
300/40	Regular	3.4S	1.05	....	....	All
450/80	Regular	3.0S	1.02	....	....	All
600/80	Regular	3.4S	1.01	....	....	All
900/120	Regular	3.4S	1.00	....	....	All
300/40	High	3.4S	1.07	....	....	All
600/80	High	3.4S	1.03	....	....	All
900/120	High	3.4S	1.02	1.02	....	All

Terms: Net 30 days F.O.B. Enka, North Carolina or Lowland, Tennessee. Minimum common carrier transportation charges prepaid to first destination on or east of the Mississippi River.

American Viscose Corp.

Effective January 23, 1956

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	All Cones Beams Tubes	All Cones Cakes
50	20	Bright & Dull	$	$1.54	$1.51	$1.40
60	10	Bright	....	....	1.36	1.25
75	10-30	Bright	1.19	1.15	1.12	1.03
75	30	Dull	....	....	1.12	1.03
100	14-40	Bright	1.07	1.02	.99	.91
100	60	Dull	....	....	1.01	.93
150	24-40-60	Bright & Semi-Dull	.94	.89	.86	.81
150	40	Dull	....	....	.86	.81
150	90	Dull	....	....	.87	.82
200	10-44	Bright	.87	.82	.79	.75
250	60	Semi-Dull & Dull	.79	.75	.72	.70
300	44	Bright & Dull	.76	.73	.70	.68
300	234	Dull	....	....	.72	.70
450	100	Bright	....	.69	.67	.65
600	100	Bright	....	.68	.66	.64
900	60-100-150	Bright	....	.67	.65	.63
1200	75	Bright	....	.64	.62	....
2700	150	Bright	....	.67	.65	....

Extra Turns Per Inch

75	30	Bright 6-Turns	$1.31	$1.27	$1.24	$
100	40	Bright 6-Turns	1.19	1.14	1.11	1.03
150	40	Bright 6-Turns	1.04	.99	.96	.91
300	15	Bright 5-Turns	....	....	.75	....
300	44	Bright 6-Turns	....	.83	.80	.78
600	30	Bright 5 Turns	....	.73	.71	.69

Rayflex Yarns

150	60	Rayflex	$	$	$ .89	$ .84
300	120	Rayflex	....	....	.72	.70
450	120	Rayflex	....	....	.69	.67
600	234	Rayflex	....	....	.68	.66
900	350	Rayflex	....	.69	.67	.65

Thick and Thin Yarns

150	40	Bright & Dull	....	1.10	....
150	90	Bright & Dull	....	1.10	....
200	75	Bright & Dull	....	1.02	....
300	120	Bright & Dull	....	.92	....
450	100	Bright & Dull	....	.89	....
490	120	Bright & Dull	....	.92	....
900	350	Dull	....	.97	....
920	120	Bright & Dull	....	.97	....

Colorspun Yarns

Currently producing 150/30 and 300/60 regular tenacity and 900/234 Rayflex at premiums of $.35 per pound.

Concord Chemical Co., Moorestown, N. J., has acquired the plant and major assets of the Standard Soap Co., Camden, N. J. Concord will move its plant and offices to the new location, 205 S. Second Street, Camden, N. J. Standard will operate as a division of Concord Chemical Co. under the same management and personnel.

Heresite & Chemical Co., Manitowoc, Wis., has opened a new sales office at Federal Storage Warehouse, 155 Washington St., Newark, N. J. Heresite products will be stored here for immediate shipment to eastcoast customers.

A new plant of **Dayton Rubber Co.** is now in full production to supply southern industry with industrial tapes and natural and synthetic rubber rollers. Known as the Holfast division, the Atlanta operation is part of a company expansion program in the Southeast.

The company also has established new and larger offices and warehousing facilities in Dallas, Texas, for its industrial V-belt division. The new headquarters address is 925 Slocum St. M. B. Roach, southwestern regional manager, heads the expanded operation.

Worumbo Manufacturing Co., Lisbon Falls, Me., announced that J. P. Stevens & Co., Inc., have been appointed to sell and merchandise Worumbo woolens to the men's and women's wear trades.

J. P. Stevens & Co., Inc., has purchased the textile properties of the Simmons Co. The sale includes plants at Roanoke Rapids, N. C., known as Patterson Mills, Rosemary Manufacturing Co., and Roanoke Mills, as well as the Simtex Mills Division of the Simmons Co.

The **Johnston Manufacturing Co.,** Charlotte, N. C., has completed a spinning room modernization program with the installation of Pneumafil central air systems on all spinning frames said to have over 20,000 spindles. Card room modernization included the installation of Pneumastop equipment on the entire roving operation.

Deaths

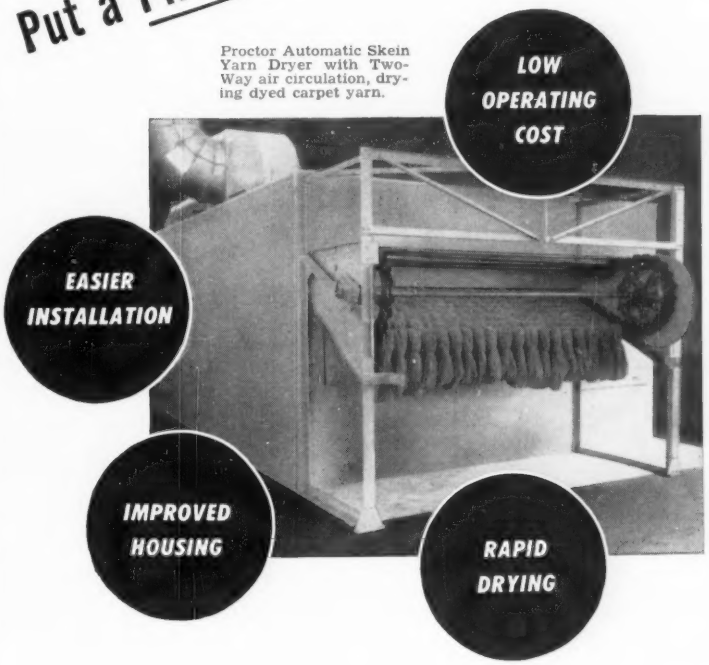
John H. S. Spencer, vice president and secretary of H. W. Butterworth & Sons Co., on January 26.

Albert Walter, formerly chairman of the board, Stauffer Chemical Co., on January 28.

Dr. S. D. Douglas, senior scientist of research department, Carbide and Carbon Chemicals Co., division of Union Carbide and Carbon Corp., on January 15.

Put a PROFIT in your yarn drying!

Proctor Automatic Skein Yarn Dryer with Two-Way air circulation, drying dyed carpet yarn.



PROCTOR DRYERS for Skein Yarn

Regardless of your output, there is a Proctor Yarn Dryer with the right capacity to make your drying profitable. Truck Dryers for skeins and cakes, or Automatic Dryers for continuous operation, both feature controlled air circulation to provide the *greatest drying uniformity obtainable.* Cotton, wool, silk, or synthetics can be dried at fastest possible rates—show substantial savings in time, labor, and steam requirements. And, as with all Proctor equipment, you can depend on performance guaranteed in terms of the finished product produced. Investigate these profit opportunities now—write today for latest information bulletins.

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AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR PRODUCING TUBULAR KNITS • EQUIPMENT FOR "REDMANIZED"® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

Proctor

PROCTOR & SCHWARTZ, Inc.

Manufacturers of Textile Machinery and Industrial Drying Equipment
Philadelphia 20, Pennsylvania

Viscose Filament Yarns

The following deposit charges are made on invoices:

Metal Section Beams	$170.00 each
Wooden Section Beams	55.00 each
Wooden Section Beam Crates	30.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
Wooden Tricot Spool Crates	20.00 each
Metal Tricot Beams—(32" flange)	150.00 each
Metal Tricot Beam Racks—(32" flange)	75.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.
Terms: Net 30 days.

Celanese Corp. of America

Current Prices
Effective January 24, 1956

Den.	Fil.	Twist	Beams	Cones	Cakes	Non Shrunk Tubes
#49 and #14 Production						
75/30/3	Bright			$1.06	$.98	....
100/40/3	Bright		$.93	.91	.86	....
100/40/5	Bright		....	.97	.92	....
100/60/3	Bright		....	.92	.87	....
125/40/2Z	Bright		.89	.87	....	....
150/40/3	Bright		.84	.72	.67	....
150/40/2Z	Bright		.82	....	....	....
150/40/5	Bright		....	.86	.81	....
150/40/8	Bright		....	.92	.87	....
150/40/0	Bright (Non Shrunk)		....	.66	....	....
300/50/3	Bright		.69	.68	.66	....
300/50/0	Bright (Non Shrunk)		....	.60	....	....
#20 Production						
150/40/3	Bright		.82	.78	.73	$.72
150/40/0	Bright (Non Shrunk)		....	.66	....	....
150/40/2Z	Bright		.80	....	....	....
300/50/3	Bright		.69	.68	.66	....
300/50/0	Bright (Non Shrunk)		....	.60	....	....
#20 Production						
100/40/3	Dull		....	.91	.86	....
100/60/2Z	Dull		.95	....	....	....
100/60/0	Dull		....	.88	....	....
100/60/5	Dull		.99	.97	.92	....
150/40/3	Dull		.82	.78	.73	.72
150/40/0	Dull (Non Shrunk)		....	.66	....	....
150/90/3	Dull		....	.85	.80	....
250/60/0	Dull (Non Shrunk)		....	.64	....	....
250/60/3	Dull		....	.72	....	.67
#52 Thick & Thin Rayon						
150/60/3	Bright		....	1.10	....	....
450/120/3	Bright		....	.89	....	....

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices
Effective January 23, 1956

Bright and Dull

Den.	Fil.	Turns/Inch Up to		(A) Cones, Beams, Tubes	Skeins	Cakes
40	20	3	Textile "Cordura"	$1.90	1.90	$1.85
50	20	3		1.58	1.58	....
50	20	3	Textile "Cordura"	1.60	1.60	1.55
50	35	3	Textile "Cordura"	1.65	1.65	1.60
75	10	3		1.12	1.15	1.03
75	15	3		1.12	1.15	1.03
75	30	3		1.12	1.15	1.03
100	15	3		.99	1.02	.91
100	40	3		.99	1.02	.91
100	60	3	Bright	.99	1.02	.91
100	60	3	Dull	1.01	1.04	.93
125	50	3		.91	.93	.85
150	40	3		.86	.87	.81
150	60	3		.86	....	....
150	60	3	Textile "Cordura"	.87	.88	.82
150	90	3	Dull	.87	.88	.82
150	100	3	Dull	.87	.88	.82
200	35	3		.79	.81	.75
300	20	3		.70	.73	.68
300	50	3.5		.70	.73	.68
300	120	3	Textile "Cordura"	.71	.74	.69
450	72	3		.67	.69	.65
600	96	3		.66	.68	.64
600	240	3	Textile "Cordura"	.67	.69	.65
900	50	3		.65	.67	.63
900	144	3		.65	.67	.63
1165	480	3	Textile "Cordura"	.65	.65	.62
1800	100	3		.65	....	....
2700	150	3		.65	....	....
5400	300	3		.72	....	....

Thick and Thin

150	90	3	#7	1.10	1.11	1.10
150	90	3	#19	1.10	1.11	1.10
200	80	3	#7	1.02	1.03	1.02
200	90	3	#19	1.02	1.03	1.02
450	100	3	#7	.89	.90	.89
1100	240	3	#50	1.32	....	1.32
2200	480	3	#50	1.14	....	1.14

Fiber E

300	50	2½	.88
900	50	2½	.83
900	90	2½	.83
2700	150	2½	.88
2700	270	2½	.88
5400	540	2½	.88

(A) 2¢/lb. additional for cones less than 3# and tubes less than 2#.
Terms: Net 30 days.

Prices are quoted F.O.B. Shipping Point—lowest cost of transportation allowed or prepaid. To points west of the Mississippi lowest cost of transportation allowed or prepaid to Mississippi River crossing.

Industrial Rayon Corp.

Effective January 27, 1956

Bleached Yarns

Denier	Filament	Turns per In.	Type	2.8 Lb. Cones	4.4 Lb. Cones	Beams	2.2 Lb. Tubes	4.4 Lb. Tubes
100	40	2.5 "S"	Bright	.99		.99		
150	40	2.5 "S"	Bright	.86		.86		
150	40	2.5 "S"	Luster #4	.86		.86		
150	40	2.5 "S"	Bright intermediate strength	.87				
200	20	2.5 "S"	Bright	.79				
200	40	2.5 "S"	Bright	.79				
300	44	2.5 "S"	Bright	.70		.70		
300	80	2.5 "S"	Bright	.70		.70		
300	80	2.5 "S"	Luster #4	.70		.70		
300	80	2.5 "S"	Bright extra strong	.72		.72		
450	60	2.0 "S"	Bright		.67	.67		
600	90	1.5 "S"	Bright		.66	.66	.66	.66
900	50	2.0 "S"	Bright	.65	.65	.65	.65	.65
900	150	1.5 "S"	Bright	.65	.65	.65	.65	.65

Luster #4 is semi-dull.

Standard skein lengths at 2,100 yards for 900 denier, 3,200 yards for 600 denier, 4,400 yards for 450 denier, and 6,500 yards for 300 denier —all at 2¢ per pound over cone prices.

North American Rayon Corp.

Current Prices
Effective January 24, 1956

First Quality Yarns	Den/Fil	Twist	Cones: Knitting*, Jacquard and Velvet Cones	Cones: No Twist Knitting Cones	Cones: Beams, Tubes** and Weaving Cones	Cones: Untreated Cakes
	75/30	3.5			$1.12	$1.03
	75/30	7			1.25	
	75/30	15			1.32	
Normal	75/30	20			1.35	
Strength Yarns	100/40/60 Brt.	3.5			.99	.91
NARCO	100/40/60	12			1.17	
	125/52	3	$.91		.91	.85
	125/52	10			1.08	
	150/42	3	.85		.86	.81
	150/42	0		$.66		
	150/60	3			.86	
	300/75	3	.70		.70	
	300/75	0		.60		
	300/75	6			.80	
	600/98	3	.66		.66	
	900/46	2.5	.65		.65	
	1800/92	2.5	.65		.65	
Semi-High	300/75 Brt.	6			.81	
Strength Yarns Hi-NARCO	300/75	3			.71	

* Oiled Cones .01 per pound extra for Graded Yarns only.
** 1 lb. tubes $.02 per pound extra for Graded Yarns only.

Terms: Net 30 days f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b. delivery point.

RAYON HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective January 26, 1956

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	$.67
1230/480	High	.67
1650/720	Low	.64
1820/720	High	.64
2200/960	High & Low	.63

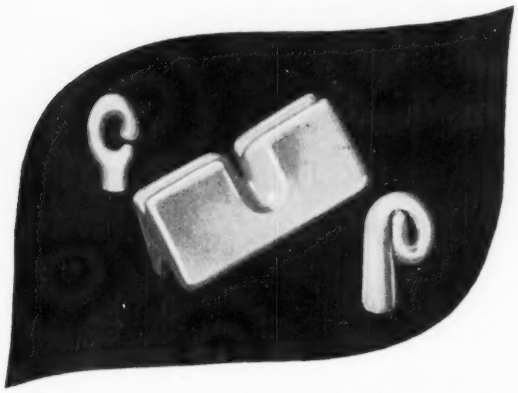
Suprenka (Extra High Tenacity)

1100/480	Low	.70
1650/720	Low	*.69
1900/720	High	.69
2200/960	Low	.68

* Beams Only.

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland Tennessee; minimum freight allowed to first destination east of the Mississippi River.

The opposite of the best is not the worst but 'good enough'.



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American Viscose Corp.

Effective January 19, 1956

Super Rayflex

Den.	Fil.	Twist	Turns	Beams	Cones
1650	980	O		$.69	$.69
1650	980	Z	4.1	.69	....

Tire Yarn

1100	490	Z	3.2	.67	....
1650	980	Z	3.2	.64	....
1650	980	O	....	.64	.64
2200	980	O	....	.63	.63

High Strength

1150	490	Z	2.5	.67	.67
1230	490	Z	3.6	.67	.67
1650	980	Z	3.5	.64	.64
1875	980	Z	3.6	.64	.64

Tire Yarn and High Strength Yarns are sold "Not Guaranteed for Dyeing."

Tire Fabric

1100/490/2	$.77
1650/980/2	.725-.76*
2200/980/2	.735

* Price determined by production factor.

Super Rayflex Fabric—add .05 to the above fabric prices.

The following deposit charges are made on invoices:

Beams	$55.00 each
Crates	30.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect.

Terms: Net 30 days.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Super Cordura"

(all packages)

1100	480	2	$.76
1250	480	2	.76
1650	720	2	.69
1900	720	2	.69
2200	960	2	.68
2450	960	2	.68

Beams containing ends of direct dyed yarn $3.30 per end extra.

Terms: Net 30 days.

Prices are quoted F.O.B. shipping point—lowest cost of transportation allowed or prepaid. To points west of the Mississippi lowest cost of transportation allowed or prepaid to the Mississippi River crossing.

Industrial Rayon Corp.

Effective January 27, 1956

Unbleached Bright High Tenacity Yarns

Den.	Fil.	Turns Per In.	4.4 Lb. Cones	Beams	2.2 Lb. Tubes	4.4 Lb. Tubes
1100	480	1.5 "Z"	.67	.67	.67	.67
1650	720	1.5 "Z"	.64		.64	.64
2200	720	2.0 "Z"	.63			
3300	1440	1.5 "Z"	.64		.64	.64
4400	1440	2.0 "Z"	.63		.63	.63
4400	2000	1.5 "Z"	.63		.63	.63

Standard skein lengths at 2,100 yards for 900 denier, 3,200 yards for 600 denier, 4,400 yards for 450 denier, and 6,500 yards for 300 denier —all at 2¢ per pound over cone prices.

900 denier 6 turns—Plus 8¢ for cones.

900 denier 6 turns—Plus 8¢ for cones.

Luster #4 is semi-dull.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River.

North American Rayon Corp.

Super-Narco High Strength Yarns—	Twist	Cones	Beams
1650	720 3Z		$.64
1850	720 3Z	$.64	
Super High Strength Yarns—			
1650	720 1.5Z	.69	.69

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b delivery point.

ACETATE FILAMENT YARN

American Viscose Corp.

Current Prices

Effective December 20, 1955

Bright and Dull

* Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
55/14	$.99	$.97	$1.00	$.93	$.94
75/20	.95	.93	.96	.89	.90
100/28	.91	.89	.92	.85	.86
120/32	.82	.80	.83	.76	.77
150/41	.74	.73	.75	.69	.70
200/54	.70	.68	.71	.66	.67
300/80	.66	.64	.67	.62	.63

* Standard Twist 2¢ additional.

Celanese Corp. of America

Current Prices

Effective December 19, 1955

Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb Cones	Beams	4 & 6-TM Tubes	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
45/13	$1.12	$1.13	$	$	$	$1.07	$
55/15	.99	1.00	....	....	.93	.94	.875
75/20	.95	.96	.93	....	.89	.90	.79
75/50	.97	.98	.95	....	....	....	.84
100/26-40	.91	.92	.89	....	.85	.86	.77
120/40	.82	.83	.81	....	.76	.77	....
150/40	.74	.75	.74	.74	.69	.70	.66
200/52	.70	.71	.70	....	.66	.67	....
300/80	66	.67	.66	....	.62	.63	.60
450/120	.64	.65	.64	....	.60	.61	....
600/160	.62	.63	.62	....	....	....	....
900/80-240	.60	.61	.60	....	....	....	.58

3 to 5 Turns on Cones or Beams .... $.02 Additional

150 Denier 12 TM Tubes .... .73

55/0/15Dull Tricot Beams .... .935

2-Pound Cheeses .... .01 Less Than 4-Pound Cheeses

2-BU and 4-BU Tubes .... Same Price as 4 and 6-Lb. Cones

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Acetate

Denier & Filament	Intermediate Twist 2 & 4 Lb. 5/8" Tubes	4-6 Lb. Twist Tubes	Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Beams
45/13/24			1.12	1.13		1.07	1.05	
55/18/24			.99	1.00		.94	.875	.935
75/24		.93	.95	.96	.89	.90	.79	.89
75/50		.95	.97	.98			.84	
100/32		.89	.91	.92	.85	.86	.77	
100/66			.93	.94			.79	
120/40/50		.81	.82	.83	.76	.77	.73	
150/16			.78	.79			.69	
150/40		.74	.74	.75	.69	.70	.66	.69
200/60		.70	.70	.71	.66	.67	.65	
240/80			.68					
300/40/80	.66	.66	.66	.67	.62	.63	.60	.62
450/120	.64	.64	.64	.65	.60	.61		
600/80/160	.62	.62	.62	.63	.59	.60		
800/40								
900/44/70/240	.60	.60	.60	.61	.59	.60	.58	
1800/88	.61	.61	.61	.62	.60	.61	.59	
2700/132/210	.61	.61	.61	.62	.60	.61		
3200/160/210	.61		.61	.62				
5400/420					.60	.61		
6000/744								
12000/1488					.65	.66		

A. 1# 5/8" Tubes—add .02 to 2 & 4 lb. 5/8" Tubes Price.

B. Regular Twist (3 thru 5 t.p.i.)—add .02 to Intermediate Twist Price.

C. 2 lb. Twisted Tubes—.01 less than 4 & 6 lb. Twisted Tubes on 150-200-300 Denier Intermediate Twist.

Color-Sealed

Denier	Intermediate Twist Twisted Tubes 2 Lb.	4 & 6 Lb.	Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Beams
55/18-24			1.37	1.38	1.31	1.32	1.245	1.315
75/24			1.34	1.35	1.28	1.29	1.18	1.28
100/32	1.26	1.26	1.28	1.29	1.22	1.23	1.14	
150/40	1.10	1.11	1.11	1.12	1.06	1.07	1.03	1.06
200/60	1.04	1.05	1.05	1.06	1.01	1.02	1.00	
300/40-80	1.00	1.01	1.01	1.02	.97	.98	.95	.97

A. Regular Twist—add .02 to intermediate twist prices.

Black

Denier	Intermediate Twist 2 & 4 Lb. 5/8" Tubes	4 & 6 Lb. Twisted Tubes	Cones	Beams	Low Twist Cones	Beams	Zero Twist Tubes	Beams
55/18-24			1.17	1.18	1.11	1.12	1.045	1.115
75/24		1.12	1.14	1.15	1.08	1.09	.98	1.08
100/32		1.06	1.08	1.09	1.02	1.03	.94	
150/40		.91	.91	.92	.86	.87	.83	.86
200/60		.85	.85	.86	.81	.82	.80	
300/40-80	.81	.81	.81	.82	.77	.78	.75	.77
450/120	.79		.79	.80	.75	.76		
600/80-160	.77		.77		.73			
800/40								
900/44-70-240								
1800/88	.74		.74		.73			
2700/132-210	.74		.74		.73			
3000/210								
3200/160	.74		.74					
5400/420					.73			
6000/744								
12000/1488					.78			

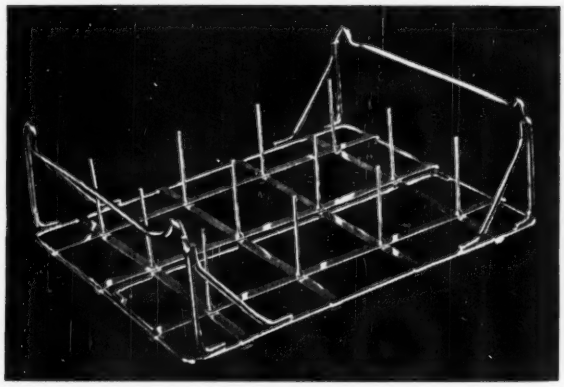
A. Regular Twist (3 thru 5 t.p.i.)—add .02 in intermediate twist prices.

B. 2 lb. Twisted Tubes are the same as 4 & 6 lb. except on 150-200 and 300 denier intermediate twist where the price is .01 less.

C. 1 lb. 5/8" Tubes—add .02 to 2 and 4 lb. 5/8" Tubes.

Terms: Net 30 Days. Domestic Prices are quoted F.O.B. Shipping Point—lowest cost of transportation allowed or prepaid. To points west of Mississippi, lowest cost of transportation allowed or prepaid to Mississippi River crossing.

Price subject to change without notice.



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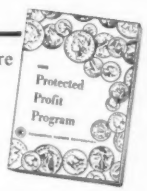

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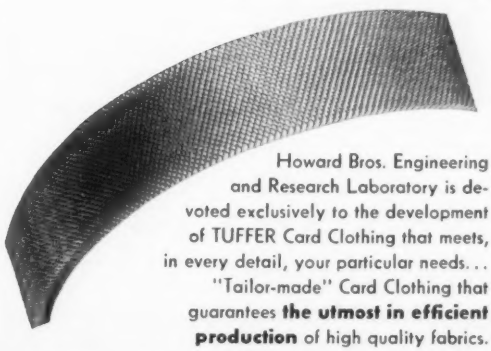
FOR SYNTHETIC FIBRES



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WORCESTER 8, MASSACHUSETTS
Southern Plants: Atlanta, Ga., and Gastonia, N. C.
Direct Representation in Philadelphia, Pa., and in Canada

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective December 19, 1955

Estron Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Tubes	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams	Tubes Twist Zero
55/13	$1.01	$0.99	$0.97	$1.00	$0.93	$0.94	$0.87½
75/19	.97	.95	.93	.96	.89	.90	.79
75/49	.99	.97	.95	.98	....	....	....
100/25	.93	.91	.89	.92	.85	.86	.77
120/30	.86	.84	.82	.85	.78	.79	....
150/38	.76	.74	....	.75	.69	.70	.66
200/50	.72	.70	....	.71	.66	.67	....
300/75	.68	.66	....	.67	.62	.63	.60
450/114	.66	.64	....	.65	.60	.61	....
600/156	.64	.62	....	.63	.59	.60	....
900/230	.62	.60	....	.61	....	....	.58
900 & Heavier	....	....	....	....	....	....	.58

Current Prices

Chromspun—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Regular Twist Beams	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist Cones	Low Twist Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

Chromspun—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist & Spun Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

RAYON STAPLE and TOW

American Viscose Corp.

Effective July 26, 1954

Rayon Staple

	Bright and Dull
Regular	$ .34
Extra Strength	
1.0 Denier	.38
"Viscose 32A"	.38
"Avisco Crimped"	
1.25 Denier	.36
3.0 & 5.5 Deniers	.35
8.0 & 15.0 Deniers	.37
"Avisco Smooth"	
8.0, 15.0 & 22.0 Deniers	.39
Short Staple Blend	.36

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier)	
1.5, 3.0 & 5.5 Denier Per Filament	.36
9.0 Denier Per Filament	.38
Grouped Continuous Filaments (4400/3000 & 2200/1500)	.65

Prices of other descriptions on request.

Terms: Net 30 days.

Celanese Corp. of America

Current Prices

Rayon Tow

	Bright & Dull
1.5, 3, 5 D.P.F.	.34
8 D.P.F.	.36

Courtaulds (Alabama) Inc.

Effective November 2, 1953

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.32	$.33

Available in 1⅛", 1-9/16" and 2".

"Coloray" Spun Dyed Rayon Staple

	1½-Den. 1-9/16"	3 Den. 2"	4½ Den. 6"	Price per Lb.
	(Code numbers for color & denier)			
Black	50	60	70	$.37
Tan	52	62	72	.39
Silver Grey	233	933	....	.39
Khaki	51	61	71	.40
Slate Grey	58	68	....	.43
Light Blue	12	47	34	.44
Sulphur	19	44	33	.44
Apple Green	17	45	37	.45
Peacock Blue	222	922	....	.46
Brown	55	65	75	.42
Medium Blue	15	48	35	.48
Dark Blue	16	49	36	.49
Indian Yellow	20	43	32	.49
Pink	21	42	39	.50
Turquoise	56	66	....	.50
Malachite Green	18	46	38	.51
Red	14	41	31	.56
Terra Cotta	8204	8219	....	.39
Medium Brown	8804	8819	....	.39
Hunter Green	5404	5419	....	.49

(In addition to the above, Black is also available in 3 den. 1⅛", 3 den. 1-9/16", 3 den. 2½", 4½ den. 2" and 4½ den. 4").

Terms: Net 30 days, f.o.b. LeMoyne, Alabama. Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Rayon Co.

Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective February 8, 1956

REGULAR

1.5 denier Bright
1½" and 2" — 32¢

VISCALON 44

15 denier 3" Dull — 39¢

VISCALON 66 (Crimped)

8 denier 2" Bright — 35¢
15 denier 3" Bright — 35¢
15 denier 3" Dull — 35¢

"KOLORLOK"—Solution Dyed Rayon Staple—15 denier 3"

	Bright	Dull
Grey	45¢	45¢
Sandalwood	45¢	45¢
Nutria	45¢	45¢
Light Green	45¢	45¢
Mint Green	45¢	45¢
Champagne	45¢	45¢
Brown	55¢	....
Black	45¢	....

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

1955 Production (Continued from Page 72)

000,000 pounds. By the end of 1955 it had risen to 2,700,000,000 pounds, or five and one-half times over the ten year period. In the same period, filament yarn production increased from 902,000,000 pounds to 2,300,000,000 pounds, or two and one-half times.

The 1955 world staple and tow figure is a new record, exceeding that of the previous year by 9½%. The latest filament yarn figure is also a new record, exceeding the previous high in 1951 by 8¼%.

While the United States increase in filament yarn production was more rapid than the trend in the rest of the world, the staple and tow increase here did not keep pace with the output for the world as a whole. Consequently, United States staple production decreased slightly to 14.6% of the world total in 1955 while the filament yarn percentage increased to 37.6%.

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— extra quality . . . easing the job of your Quality Control engineer . . . arming you with a selling weapon in the market.

Refer your ring problems to DIAMOND FINISH — world's largest ring plant — for constructive suggestions.

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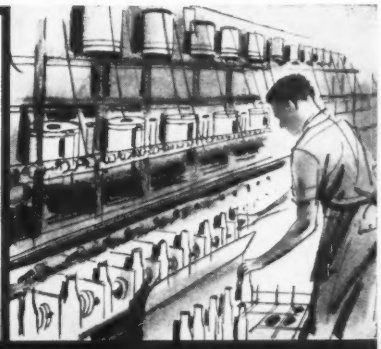
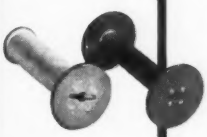
Aluminum Take-Up Bobbin. Hard worker with a long life . . . takes crushing pressure of any yarn.



Lestershire Bobbins by NATIONAL

Wood and Fibre Twister Bobbins—Low cost—long life—for non-steaming use.



Rayon Twister Bobbins—Handle rayon or nylon at high speed, with steaming.

first choice of economy-wise mill men

Can your mill afford a full-time research program? Or even just one man to study nothing but bobbin problems? You won't need either when you use Lestershire Bobbins by National. Our research staff is working continually on *your* problems—new synthetic yarns, larger "packages," higher speeds—as they develop. You buy assurance when you buy Lestershire — assurance of the right bobbin for almost any spindle speed or yarn in use today.

Lestershire's program of research and development helps you in many ways. Quality control standards we've developed pay off in long, trouble-free bobbin and spindle life. Prices are realistic, too.

For prompt service, get in touch with your nearby National office or representative. In the South it's Odell Mill Supply Co., Greensboro, N. C.; Greenville Textile Supply Co., Greenville, S. C. Or write us at Wilmington, Delaware.

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NEW DIMENSIONS IN DESIGN AND SERVICE TO THE TEXTILE INDUSTRY

ACETATE STAPLE and TOW

Celanese Corp. of America

Current Prices

Staple

	Bright & Dull
Celanese Acetate Staple	
2, 3, 5.5 & 8 Individual Deniers	$.32
12 & 17 Individual Deniers	.33
35 & 50 Individual Deniers	.36
Variable Acetate Fibers	.30
35 Individual Denier Flat Filament Acetate	.38

Tow

	Bright & Dull
Celanese Celatow Acetate	
2, 3, 5.5 & 8 Individual Deniers	$.34
12 & 17 Individual Deniers	.35
35 & 50 Individual Deniers	.37

Terms: Net 30 days. Prices per pound F.O.B. shipping point, lowest transportation allowed to destination in U.S.A. east of the Mississippi River.

Prices subject to change without notice.

All previous prices withdrawn.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.

Effective October 31, 1955

Estron Staple

Deniers per Filament	Bright and Dull
2, 3, and 5	$.32 per lb.

Prices are subject to change without notice.

Prices on special items quoted on request.

Terms: Net 30 days. Payment—U. S. A. dollars.

Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.

NON CELLULOSIC YARN

ACRYLIC

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon"

	1st Grade	2nd Grade
75 denier, 30 filaments	$2.65	$2.35
100 denier, 40 filaments	2.35	2.10
200 denier, 80 filaments	2.25	2.00

Terms: Net 30 days.

These prices are subject to change without notice. All prices are quoted f.o.b. shipping point.

NYLON

Allied Chemical and Dye Corporation

"Caprolan" Tensile Tough Nylon

Effective December 1, 1955

Heavy Yarns

Denier	Filament	Turn/in.	Type**	Package	Price/lb.
2100	6 d/f	Nominal	HB	Parallel Paper Tube*	$1.38
2500	6 d/f	Nominal	HB	Parallel Paper Tube	1.38
5000	6 d/f	Nominal	HB	Parallel Paper Tube	1.38
15000	6 d/f	Nominal	HB	Parallel Paper Tube	1.38

Terms—Net 30 days.

These prices are subject to change without notice. All prices are quoted f.o.b. shipping point.

Freight equalized with the nearest nylon yarn producing plant by our route.

* Parallel Paper Tubes non-returnable, no charge.

** Type is used to describe luster and tenacity.
Type HB: High Tenacity, Bright.

American Enka Corporation

Nylenka Filament Yarn Prices

Effective December 1, 1955

Denier & Filament	Twist	Luster	Type	Tenacity	Package	Yarn Weight per Package	Price per Pound Std.	Price per Pound Substd.
840/140	0.5Z	Bright	9202	High	Pirns	2 Lbs.	$1.48	$1.35
840/140	0.5Z	Bright	9208	High	Cones	4 Lbs.	$1.48	$1.35
840/140	0.5Z	Bright	9302	High	Beams	As Required	$1.48	$1.35
210/34	0.5Z	Bright	9204	High	Pirns	2 Lbs.	$1.65	$1.55
210/34	0.5Z	Bright	9214	High	Cones	4 Lbs.	$1.65	$1.55
210/32	0.5Z	Bright	9212	High	Pirns	2 Lbs.	$1.65	$1.55
210/32	0.5Z	Bright	9216	High	Cones	4 Lbs.	$1.65	$1.55
200/32	0.5Z	Bright	9802	Normal	Pirns	2 Lbs.	$1.75	$1.55
100/32	0.5Z	Bright	9642	Normal	Pirns	2 Lbs.	$1.90	$1.75
50/13	0.5Z	Semi-dull	9442	Normal	Pirns	2 Lbs.	$2.15	$2.00
40/13	0.5Z	Semi-dull	9428	Normal	Pirns	2 Lbs.	$2.25	$2.05
40/8	0.5Z	Semi-dull	9432	Normal	Pirns	2 Lbs.	$2.25	$2.05
30/8	0.5Z	Semi-dull	9418	Normal	Pirns	1 Lb.	$2.70	$2.55
15/1	0.5Z	Semi-dull	9408	Normal	Pirns	1 Lb.	$6.00	$5.70

Terms: Net 30 days F.O.B. Enka, North Carolina. Freight charges to be equalized with charges from producing points of like materials located nearest to destination.

Pirns charged at $.25 each. Deposit refunded upon return of pirn in good condition. Cones are non-returnable. Beams (Domestic Price) at $220 each. Cradles (Domestic Price) for beams at $50.00 each. (Beams and cradles are deposit carriers and remain property of American Enka Corporation.)

The Chemstrand Corp.

Current Prices

Den.	Fil.	Twist	Type*	Pkge.	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	$9.00	$8.50
15	1	O	SD	Bobbins	6.00	5.70
15	3	Z	SD	Bobbins	6.00	5.40
20	7	Z	SD	Bobbins	3.50	3.30
30	10	Z	SD	Bobbins	2.70	2.55
30	10	Z	HSD	Bobbins	2.70	2.40
40	7	Z	SD	Bobbins	2.44	2.20
40	13	Z	SD	Bobbins	2.25	2.05
40	13	Z	D	Bobbins	2.35	2.05
50	17	Z	SD	Bobbins	2.15	2.00
70	34	Z	SD	Bobbins	1.90	1.75
70	34	Z	B	Bobbins	1.90	1.75
70	34	Z	HB	Bobbins	2.00	1.85
100	34	Z	HB	Bobbins	1.95	1.75
100	34	Z	SD	Bobbins	1.90	1.75
140	68	Z	SD	Bobbins	1.85	1.70
200	34	Z	B	Bobbins	1.75	1.55
210	34	Z	HB	Bobbins	1.65	1.55
260	17	Z	HB	Bobbins	1.80	1.60
840	140	Z	HB	Beams	1.48	1.35
840	140	Z	HB	Tubes	1.48	1.35

Terms: Net 30 days.

Note: All Standard Quality Yarn—No break.

Bobbins, tubes, beams, and crates for beams become the property of the yarn purchaser. Bobbins are invoiced at 25¢ or 45¢ each, depending on type; tubes are invoiced at 40¢ each; and beams and crates for beams are invoiced at $220 and $25 respectively.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier	Filament	Turn/In.	Twist	Type*	Package	1st Grade	2nd Grade
7	1	0	O	200	Bobbin	$10.00	$9.50
10	1	0	O	200	Bobbin	9.00	8.50
12	1	0	O	200	Bobbin	8.00	7.60
12	4	¼	Z	200	Bobbin	8.00	7.20
15	1	0	O	200	Bobbin	6.00	5.70
15	1	0	O	670/680	Bobbin	6.10	5.70
15	3	¼	Z	200	Bobbin	6.00	5.40
20	1	0	O	200	Bobbin	5.00	4.50
20	7	½	Z	200	Bobbin	3.50	3.30
20	7	½	Z	670	Bobbin	3.60	3.30
20	20	¾	Z	209	Bobbin	7.00	
30	10	½	Z	100/200	Bobbin	2.70	2.55
30	10	½	Z	670/680	Bobbin	2.80	2.55
30	26	½	Z	200	Bobbin	2.85	2.70
40	1	0	O	100/200	Bobbin	4.25	4.00
40	7	½	Z	200	Bobbin	2.44	2.20
40	13	½	Z	100/200	Bobbin	2.25	2.05
40	13	½	Z	400	Bobbin	2.35	2.15
40	13	½	Z	670/680	Bobbin	2.35	2.05
40	34	½	Z	200	Bobbin	2.40	2.20
50	7	½	Z	200	Bobbin	2.35	2.10
50	17	½	Z	200	Bobbin	2.15	2.00
50	17	½	Z	670	Bobbin	2.25	2.00
60	20	½	Z	200	Bobbin	2.00	1.90
70	17	½	Z	100/200	Bobbin	1.90	1.70
70	34	½	Z	100/200	Bobbin	1.90	1.75
70	34	½	Z	300	Bobbin	2.00	1.85
70	34	½	Z	670/680	Bobbin	2.00	1.75
80	26	½	Z	200	Bobbin	1.90	1.75
80	68	½	Z	200	Bobbin	2.00	1.80
100	34	½	Z	100/200	Bobbin	1.90	1.75
100	34	½	Z	300	Bobbin	1.95	1.75
100	34	½	Z	680	Bobbin	2.00	1.75
100	50	½	Z	200	Bobbin	2.00	1.80
140	68	½	Z	100/200	Bobbin	1.85	1.70
140	68	½	Z	300	Bobbin	1.90	1.70
200	20	½	Z	100	Bobbin	1.90	1.70
200	34	¾	Z	100	Bobbin	1.75	1.55
200	34	¾	Z	680	Bobbin	1.85	1.55
200	68	¾	Z	200	Bobbin	1.75	1.55
210	34	¾	Z	300	Bobbin/Beam	1.65	1.55
260	17	1	Z	300	Bobbin	1.80	1.60
400	68	¾	Z	100	Bobbin	1.65	1.50
420	68	¾	Z	300	Bobbin	1.65	1.50
780	51	½	Z	300	Bobbin	1.65	1.50
800	140	½	Z	100	Bobbin	1.65	1.50
840	136	¾	Z	300	Bobbin	1.48	1.35
840	140	½	Z	300	Alum. Tube/Beam	1.48	1.35

Industrial Yarn						Price/Lb.	
15120	2520	0	O	300	Paper Tube	$1.38	

These prices are subject to change without notice.

Terms—Net 30 Days.

All prices are quoted f.o.b. shipping point.

Freight equalized with the nearest Nylon Yarn Producing Plant by our route.

Following are invoiced as a separate item:

Bobbins at 25 cents or 45 cents each depending on type.

Aluminum Tubes at 40 cents each.

Beams (Domestic Price) at $220.00 each.

Cradles (Domestic Price) for Beams at $115.00 each.

(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co.)

Types

* Type is used to describe luster, tenacity, and size or oil content.
Type 100 Bright, normal tenacity.
Type 200 Semidull, normal tenacity.
Type 209 Semidull, normal tenacity, #S-139 spin finish.
Type 300 Bright, high tenacity.
Type 670 Dull, normal tenacity.
Type 680 Dull, normal tenacity.

** Based on nylon containing 4.5% moisture regain.
Finish content is not included in billed weight.

Tests for Drawing

(Continued from Page 40)

Procedure I:

Watch and mark on the top roll the outside limits of the traverse motion. Then measure the distance.

Procedure II (Recheck Procedure):

1. Measure the traverse bar, by watching the cam or crank until the traverse motion mechanism has come to one end.
2. Make a chalk mark on the roll at this point.
3. Make another chalk mark at the completion of the stroke towards the opposite end of the mechanism.
4. Measure the distance.

Note: This recheck procedure is required only when Procedure I indicates an off-standard traverse motion.

Evaluation

In general, optimum horizontal traverse extends to at least ⅜ inch off the end of the roll, to either side; and at most to ¼ inch off the end.

A traverse which permits the roving or yarn to come closer to the sides of the roll invites the possibility of excessive ends-down. A traverse of less than ⅜ inch off the side end of the roll causes excessive roll wear.

Off-standard traverse conditions should be reported to the personnel concerned, so that corrective action can be taken.

Dye Lecture Series

The American Association of Textile Chemists and Colorists is giving a series of five lectures entitled "Application of Vat Dyes" at the Philadelphia Textile Institute beginning March 5, 1956, from 7:30-9:30 p.m.

For further information write Thomas R. Scanlan, Jr., Publicity Committee, Philadelphia Section, AATCC, Hart Products Corp., P.O. Box 5025, Philadelphia 11, Pa.

AATCC Committee Heads Named

New chairmen of the Executive Committee on Research and the Technical Committee on Research of the American Association of Textile Chemists and Colorists were approved for 1956 by the Association.

Charles W. Dorn, research director of J. C. Penney Co., Inc., New York, succeeds Leonard S. Little, textile consultant, as chairman of the AATCC Executive Committee on Research. Charles A. Sylvester, of the Du Pont Co., succeeds Mr. Dorn as chairman of the Association's Technical Committee on Research.

New Rayon Carpets Shown

Rayon carpets by 35 manufacturers licensed to use the Avisco Integrity Tag were shown at the Chicago Merchandise Mart. The carpets shown were in many colors as well as tweeds and pile effects in single colors.

British Nylon Exhibit

(Continued from Page 73)

A remarkable new knitted nylon upholstery fabric which looks like velvet but is at least 100 times tougher than standard fabrics is also on show. In tests which broke standard cut moquette at 900 rubs, the new nylon fabric survived 100,000. Even the abrasive had to be renewed three times before the nylon finally broke.

Nylon is also being featured in many new fabrics for dresses and lingerie and also for heavy-wear uniforms. One firm, Fine Spinners and Doublers Ltd., has produced a man's suiting which weighs only seven to eight ounces a square yard and which is expected to be on the market by 1960. This fabric has been developed by mixing nylon with Ardil (protein fiber) and rayon for strength and durability.

There is a story behind the production of the first nylon velvet in the world, made by Martin & Savage Ltd. of Yorkshire. When the first length came off the loom, the managing director took a half-yard sample and set off in his auto for London, driving through a snow-storm. The sample disappeared—but the director later found it behind his spare wheel, where he had knocked it when changing his tires. The cloth was filthy, dirty and twisted like a rag. When he reached home he washed it with ordinary toilet soap and hung it out to dry. It was perfect and was subsequently used as a demonstration sample. This nylon-velvet is 42 in. wide.

During the five day run of the Fair nearly 20,000 buyers visited it. ■

Don't "MUFF" your chances for better stretch Nylon yarns

HOFFNER DYES NYLON STRETCH YARNS on TUBES

for your better profit and satisfaction

Don't believe all you hear and read that "Muff" dyeing is the latest and best way to dye Nylon Stretch Yarns. "Muff" dyeing has become antiquated at Hoffner.

Give Hoffner a call and make us prove we can give you quality Nylon Stretch Yarns dyed on tubes. Quality dyers of modern yarns since 1922.

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Plants: Philadelphia and Quakertown, Penna.

Representatives: Shannonhouse & Wetzel, Johnston Bldg., Charlotte, N. C.
David F. Swain & Co., 222 W. Adams St., Chicago 6, Ill.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron"

Den.	Fil.	Twist	Luster	Type	Tubes 1st Gr.
30	20	0	Dull	5700	$3.45
40	27	0	Semi-Dull	5600	3.00
40	27	0	Dull	5700	3.10
70	34	0	Semi-Dull	5600	2.35
70	34	0	Bright	5500	2.35
70	34	0	Dull	5700	2.45
150	68	0	Semi-Dull	5600	2.25
220	50	0	Bright	5100	2.20
250	50	0	Bright	5500	2.15
1100	250	0	Semi-Dull	5900	1.75
1100	250	0	Bright	5100	1.75

F.O.B. Grainger, N. C. Terms: Net 30 days. Prices subject to change without notice. "Dacron" Polyester Fiber billed on Gross Weight and contains 1% or less moisture and finish.

NON CELLULOSIC STAPLE & TOW

ACRYLIC

The Chemstrand Corp.

Current Prices

"Acrilan"

2.0 denier Semi-dull staple and tow	$1.18
3.0 denier Bright & Semi-dull staple and tow	1.12
5.0 denier Bright & Semi-dull staple and tow	1.12
Hi-Bulk staple Semi-dull	1.12

Terms: Net 30 days. Freight prepaid to points east of the Mississippi River.

Carbide and Carbon Chemicals Co.

Div. Union Carbide and Carbon Corp.

Textile Fibers Dept.

Effective November 1, 1955

Dynel Staple

Natural Dynel	
3, 6, 12, and 24 Denier, Staple and Tow	$1.05 per lb.
Whitened Dynel, and Dynel Spun with Light Colors: Blonde, Gray, or Taupe	
3 and 6 Denier, Staple and Tow	1.20 per lb.
Dynel Spun with Dark Colors: Black and Brown	
3 and 6 Denier, Staple and Tow	1.30 per lb.

Prices are quoted f.o.b. South Charleston, W. Va.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Orlon" Acrylic Staple & Tow

Denier	Price 1st Grade
2.0 Denier	$1.30
3.0 Denier	1.25
3.0 Denier Color-sealed Black—Staple only	1.60
4.5 Denier	1.20
6.0 Denier	1.20

Staple Lengths—1½", 2", 2½", 3", 4½".

High Shrinkage Staple same price as Regular Staple.

F.O.B. Shipping Point—Lowest cost of transportation allowed or prepaid. To points West of Mississippi, transportation prepaid or allowed to Mississippi River crossing.

Prices subject to change without notice.

NYLON

American Enka Corp.

Nylenka (Nylon Six Staple)

Semi-Dull	
3 denier, 1⅛", 1½", 2", 2⅝", 3", 4½"	$1.25
Bright	
6 denier, 3", 4½"	1.25
10 denier, 3"	1.20
15 denier, 3"	1.20

Deniers and lengths not listed above are available upon special request.

Terms: Net 30 days F.O.B. Enka, North Carolina. Freight charges to be equalized with charges from producing points of like materials located nearest to destination.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Staple and Tow

Denier	Length	Type*	Price/Lb.**
1.5	1⅛"—1½"—2"—2½"	100/200	$1.30
1.5	1⅛"—1½"—2"—2½"	101/201	1.32
3.0	1⅛"—1½"—2"—2½"—3"—4½"	100/200	1.25
3.0	1⅛"—1½"—2"—2½"—3"—4½"	101/201	1.27
6.0	1⅛"—1½"—2"—2½"—3"—4½"	100/200	1.25
6.0	1⅛"—1½"—2"—2½"—3"—4½"	101/201	1.27
15.0	1½"—3"—4½"—6½"	100	1.20
15.0	1½"—3"—4½"—6½"	101	1.22

Tow price same as Staple for:

1.5 denier type 200 in 330,000 total denier
1.5 denier type 201 in 350,000 total denier
3.0 denier type 100/200 in 430,000 total denier
3.0 denier type 101/201 in 455,000 total denier
6.0 denier type 100 in 330,000 total denier
6.0 denier type 101 in 345,000 total denier
15.0 denier type 100 in 330,000 total denier
15.0 denier type 101 in 350,000 total denier

These prices are subject to change without notice.

Terms: Net 30 days.

All prices are quoted f.o.b. shipping point.

Freight equalized with Covington, Va. or Enka, N. C. by our route.

Types

* Type is used to describe luster, tenacity, not crimpset, or crimpset.
Type 100 Bright, normal tenacity, not crimpset.
Type 101 Bright, normal tenacity, crimpset.
Type 200 Semi-dull, normal tenacity, not crimpset.
Type 201 Semi-dull, normal tenacity, crimpset.

** Based on nylon containing 4.5% moisture regain.

Industrial Rayon Corp.

Effective November 23, 1955

Nylon Staple

1.5 denier	$1.30 per lb.
2, 3 and 6 denier	1.25 per lb.
8 and 15 denier	1.20 per lb.

Bright and semi-dull, required length.

Terms: Net 30 days f.o.b.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

"Dacron" Staple and Tow

Den.	Luster	Type	Staple Length	Tow Bundle	1st Gr.
1.5	Semi-Dull	5400	1½"-4½"	385M	$1.40
3.0	Semi-Dull	5400	1½"-4½"	385M	1.35
4.5	Semi-Dull	5400	1½"-4½"	385M	1.35
6.0	Semi-Dull	5400	1½"-4½"	385M	1.35

F.O.B. Graingers, N. C. Terms: Net 30 Days.

Prices subject to change without notice.

"Dacron" Polyester Fiber billed on Gross Weight basis and contains 1% or less moisture and finish.

Yarn Types

5100 Bright High Tenacity
5600 Semi-Dull Normal Tenacity
5700 Dull Normal Tenacity
5500 Bright Normal Tenacity
5900 Semi-Dull High Tenacity

Tubes are invoiced as a separate item at $.50, $.70, or $.80 each and are returnable for credit.

* Trademark for du Pont's polyester fiber.

POLYVINYL ACETATE

American Viscose Corp.

Effective October 1, 1950

Vinyon Staple

3.0 denier ½" unopened	$.80 per lb.
3.0 denier 1¼", 2" opened	.90 per lb.
5.5 denier 1", 3½" opened	.90 per lb.

Terms: Net 30 days.

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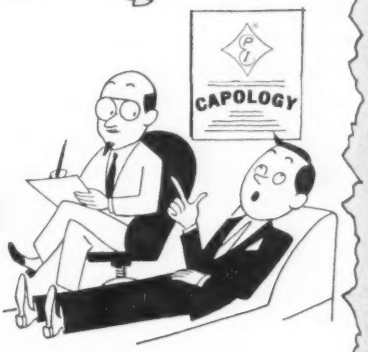

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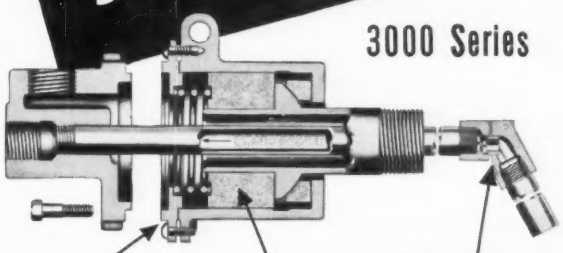
Johnson Joint with SYPHON ELBOW

3000 Series



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SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

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on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

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844 Wood St., Three Rivers, Mich.

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Charlotte Fibre Co.

Exclusive Agents for Snia Viscosa Italy "Merinova"
Effective January 1, 1954

Merinova Staple

3 Denier 1-9/16", 2-1/2" and 3"	$.81
5 Denier 1-1/16", 1-9/16", 2-1/2", 4" and 6"	.81
9 Denier 4"	.81
18 Denier 6", 2-1/2"	.81
60 Denier 14"	.85

Other lengths or deniers can be produced as requested.
Solution-dyed Merinova staple fiber.

Light colors	.90 per lb.
Medium colors	.95 per lb.
Dark colors	1.00 per lb.
French Combed Tops	1.10

Terms: Net 30 days. All prices are duty paid, landed free, freight prepaid to rail point nearest destination.

Virginia-Carolina Chemical Corp.

Fiber Division
Effective January 15, 1951

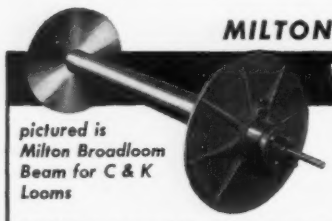
Vicara Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.00 per lb.	$1.05 per lb.
5 Denier	1.00 per lb.	1.05 per lb.
7 Denier	1.00 per lb.	1.05 per lb.

Bleached Vicara Staple

	Standard Crimp	Highly Crimped
3 Denier	$1.10 per lb.	$1.15 per lb.
5 Denier	1.10 per lb.	1.15 per lb.
7 Denier	1.10 per lb.	1.15 per lb.

Staple length ½ to 6 in.
Supplied in staple lengths or as continuous tow (270,000 filaments).
Terms: Net 30 days.
Prices f.o.b. Taftville, Conn. on 10% moisture regain basis.



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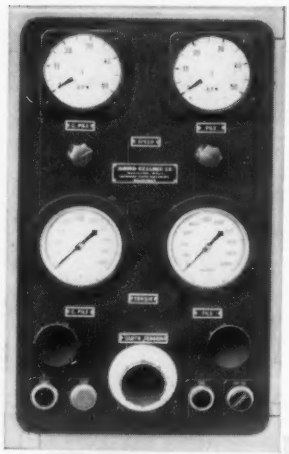
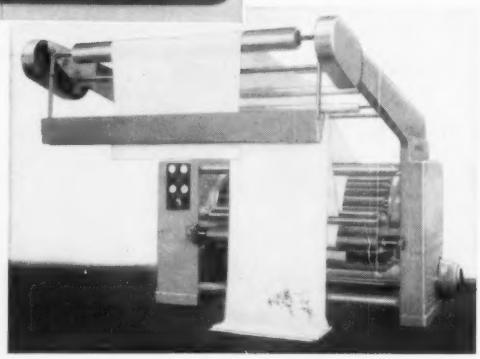


Gessner's new Hi-Torc Napper can be switched from single to double acting napping — simply by adjusting the controls — so easily, quickly that it is hard to believe.



In addition to versatility, the Hi-Torc Napper is capable of rendering exact napping results — again, from the control panel. Once attained, these effects can be easily duplicated over and over, or measurably varied at will.

Small wonder that Hi-Torc Nappers in actual use have been operated at several times the production rate thought of as normal.

Simply tell us you would like to see a Hi-Torc Napper in operation. We'll do the rest.

DAVID GESSNER CO.
WORCESTER, MASS.

Canadian Representative: W. J. Westaway, Montreal, Quebec, Hamilton, Ont.

Gessner takes the guesswork out of napping

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Calendar of Coming Events

MAR. 7—AATT meeting, Builders Club, New York, N. Y.
MAR. 13-16—ASTM, Committee D-13 spring meeting, Hotel Warwick, New York, N. Y.
MAR. 13-APR. 12—Meetings Synthetic Organic Chemical Mfrs. Assoc., Hotel Roosevelt, New York City.
MAR. 15-16—5th annual spring conference American Institute Industrial Engineers (Cleveland Chapter).
MAR. 15-17—Annual meeting Am. Physical Society, Pittsburgh, Pa.
MAR. 22-23—Annual convention Southern Textile Methods and Standards Association. Clemson, S. C.
MAR. 23-APR. 27—Meetings AATCC New York Section, Kohler's Swiss Chalet, Rochelle Park, N. J.
MAR. 22-23—Annual meeting Textile Research Institute, Hotel Commodore, New York, N. Y.
APR. 5-6—Am. Soc. Quality Control spring meeting, Clemson House, Clemson, S. C.
APR. 5-7—Convention American Cotton Manufacturers Institute. Hollywood Beach, Fla.
APR. 9-12—National Packaging Exposition. Auditorium, Atlantic City, N. J.
APR. 18-19—National Knitted Outerwear Association. Waldorf-Astoria Hotel, New York, N. Y.
APR. 28-MAY 1—Nat'l Assoc. Hosiery Mfrs., annual convention, Boca Raton, Fla.
MAY 2-3—The Fiber Society, Clemson House, Clemson, S. C.
MAY 30-JUN. 2—Tufted Textile Mfrs., annual convention, Fontainbleau Hotel, Miami, Fla.

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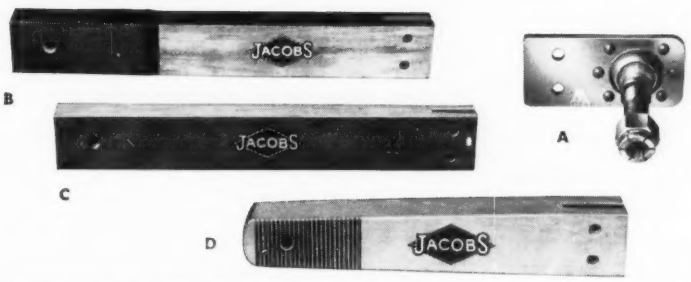
Sweepsticks and Connectors

by JACOBS *For Maximum Loom Efficiency*



B

A

C

D

A. VAN-DAR HEAD

A replaceable rod end bearing for all types of JACOBS sweepsticks. Allows close fit on pick arm stud and avoids hole elongation to give a pick that is absolutely even. Heads and bodies are individually replaceable.

B. RUBBERWELD

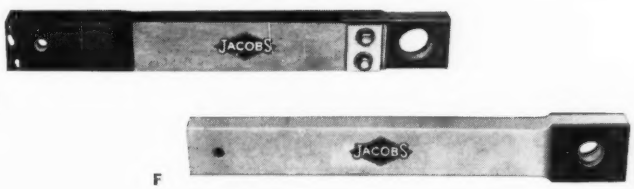
Patented construction of chemically bonded plyweld and neoprene gives the smoothest, most resilient pick known to the industry.

C. RUBBERIZED FABRIC

Molded rubber combined with fabric. Uniform consistency assures maximum strength and length of life.

D. HICKORY

Made of highest grade stock. Economical and long-wearing.



E

F

E. RUBBERWELD (with plastic head)

Has removable head of high-impact plastic. Body is long-wearing, resilient, and replaceable.

F. REINFORCED CANVAS

High quality Army Duck reinforced by plastic blocks on each side of stud hole for long wear.

The Bullard Clark Company

SOUTHERN DIVISION
Charlotte, N. C.

JACOBS

NORTHERN DIVISION
Danielson, Conn.

G

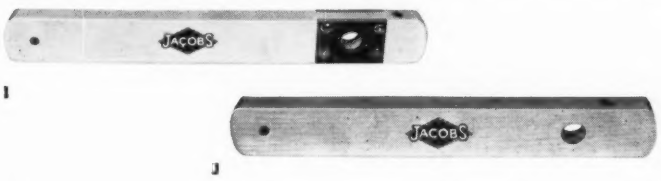
H

G. RUBBERIZED FABRIC

Molded cloth and rubber. Reinforced at stud hole by plastic plates and built up at lug hole for improved performance.

H. LAMINATED

Constructed of highest quality Plyweld or Pakweld, in regular design or streamline style for lighter weight.



I

J

I. REINFORCED HICKORY

Made of highest grade hickory with fiber reinforcements at the stud hole for longer wear.

J. HICKORY

Highest grade hickory but without reinforcements. The most inexpensive sweepstick of the JACOBS line.

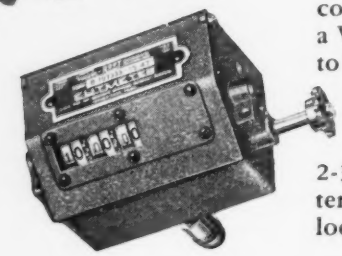
JACOBS *Can solve ANY Sweepstick or Connector Problem!*

EXCLUSIVE SALES AGENTS
All Metal and Pitch Band
REEDS manufactured by
American Reed Co., Inc.
Lawrence, Mass.

In Spinning...

New Veeder-Root 2-3-4 Convertible Hank Counters are easier to read, reset and maintain. And they are built to give you years of accurate facts-in-figures that help toward closer production *Count*rol.

Weaving...



Here's the combination to count on . . . *on every loom* . . . a Veeder-Root Cut Meter (left) to light a light or stop the loom at a pre-set woven yardage, *assuring uniform cuts of cloth* . . . and a new Veeder-Root 2-3-4 Convertible Pick Counter to keep accurate count of loom production on each shift.

Knitting...

For any type of knitting machine, Veeder-Root makes the counters you need to control your production. These new Revolution Counters, with the same advantages as the new 2-3-4 Convertible Hank and Pick Counters, can also be geared to record racks, or racks and tenths. In Fact, In Any Department of Any Type of Textile Mill . . .

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IS "THE NAME THAT COUNTS"

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